Index to Contents, April 1943

(The Annual Index to Contents appears at the back of the December issue each year.)

Accounting, Municipal
Small City Gives Accounting Control to Comptroller ... 47

Airports and Aviation
Analyzing the Design of Airport Runways ... 81

Billboards
Vermont Supreme Court Refuses to Reconsider Its Billboard Decision ... 99

Buildings, Public
Atlanta Auditorium Gets Modernized Front Without Critical Materials ... 63

Business and Industrial Development
Private Agencies and Public Goals ... 54
To Preserve the American Way of Life 64

Business Machines and Equipment
Small City Gives Accounting Control to Comptroller ... 47

Camouflage
Camouflage Planting ... 52

City Manager Plan
City Manager Appointments ... 79

Civilian Defense
Camouflage Planting ... 52
Philadelphia Fire Bureau Gets Cooperation and Gives ... 60
Local Government Is News—28 ... 77
War Standards for Protective Lighting 91

Conservation and Salvage
Concrete Manhole Covers ... 11
Asphalt-less Street Repairs ... 50
Rehabilitation Clinic ... 73
Atlanta Auditorium Gets Modernized Front Without Critical Materials ... 63

Finance and Taxation
Post-War Construction and Plans ... 13
Small City Gives Accounting Control to Comptroller ... 47
Municipal Bond Market ... 101

Conventions
Conventions—When and Where ... 101

Fire Prevention and Control
Philadelphia Fire Bureau Gets Cooperation and Gives ... 60
Making Wood Fire Resistant ... 111

Gardens
Victory Garden Rate on Scientific Basis 9

Government and Administration
Municipalities and the NRPB Reports 5
Equipment Pooling for Street Maintenance ... 11
Post-War Construction and Plans ... 13
Mayors and Chairmen as Clarifiers ... 51
Private Agencies and Public Goals ... 54
WPB to Change Sewerage Setup ... 56
Philadelphia Fire Bureau Gets Cooperation and Gives ... 60
To Preserve the American Way of Life 64
Rates, Services, and Performance of Municipal Water-Works Interconnections 69

Health and Sanitation
If You Are Talking About "The Good Old Days" ... 11
A War Development for Controlling Insects ... 117

Insurance, Municipal
Burned Trust Nets 87% Cost of New 15

Landscape Architecture
Camouflage Planting ... 52

Laws and Legal Decisions
Municipal Law Notes and Decisions ... 97
Vermont Supreme Court Refuses to Reconsider Its Billboard Decision ... 99

Lighting, Outdoor
War Standards for Protective Lighting .. 91
Are Dimouts Necessary? ... 93
Where, Why, and How to Light Streets Today ... 93
Protective Lighting with Bare Incandescents ... 95

Motor Equipment
Burned Truck Nets 87% Cost of New 15
Wartime Transit Operation ... 85

Planning and Zoning
Green-Belts, Traffic Efficiency, and Quietness of Living in Urban Areas 57
Zoning and Planning Notes ... 99
(See also Post-War Planning)

Police
Women Become Policemen As Police Become Soldiers ... 15
Getting Police Radio ... 15

Post-War Planning
Municipalities and the NRPB Reports 5
How Small Cities Are Planning for Post-War Municipal Improvements ... 43
WPB to Change Sewerage Setup ... 56
Green-Belts, Traffic Efficiency, and Quietness of Living in Urban Areas 57
AMA Creates Committee on Post-War Planning ... 59
To Prevent Destructive Decentralization 63

Power Plants
Dependability and Low Rates in Municipal Electric Service ... 55

Priorities, Municipal
Priorities Developments for Municipalities ... 44

Public Relations
Local Government Is News—28 ... 77

Public Utilities
Dependability and Low Rates in Municipal Electric Service ... 55
Meters, Management, and Meeting Modern Wartime Problems ... 68

Public Welfare
Municipalities and the NRPB Reports 5
Rehabilitation Clinic ... 64

Publications
New Books and Pamphlets ... 105

Radio
Getting Police Radio ... 15
New Radio Keeps Coaches Flowing ... 15

Recreation
Camouflage Planting ... 52
Atlanta Auditorium Gets Modernized Front Without Critical Materials 63
Recreation in Small Communities ... 71

Safety
Bending the Twig to Traffic Caution ... 7
Women Become Policemen as Police Become Soldiers ... 15
Eight Entertaining Traffic Safety Films 89

Sewers and Sewage Treatment
Pipes of the City ... 7
Post-War Construction and Plans ... 13
Concentrating Sludge Economically ... 13
Sludge Gas for Truck Power ... 13
WPB to Change Sewerage Setup ... 56
About . . . Sludge Gas Engines ... 62
Polishing the Effluent ... 64

Street Construction and Maintenance
Concrete Manhole Covers ... 11
Prompt Maintenance Pays in Ft. Wayne, Ind. ... 11
Equipment Pooling for Street Maintenance ... 11
If You Are Talking About "The Good Old Days" ... 11
Asphalt-less Street Repairs ... 50
Private Agencies and Public Goals ... 54
Polishing the Effluent ... 64

Traffic Control nd Facilitation
Bending the Twig to Traffic Caution ... 7
Green-Belts, Traffic Efficiency, and Quietness of Living in Urban Areas 57
Wartime Transit Operation ... 85
Parking Control on "War" Streets ... 87
Coordinating Automobiles, Walking, and Mass Riding ... 87
Eight Entertaining Traffic Safety Films 89

Transportation
Wartime Transit Operation ... 85

Water Supply and Purification
Pipes of the City ... 7
Gate Valves ... 9
A. W. W. A. Elects Officers ... 9
Victory Garden Rate on Scientific Basis 9
Water Resources—February ... 9
St. Paul Likes Soft Water ... 45
Prospecting for Water in a City of Oil Wells ... 66
Meters, Management, and Meeting Modern Wartime Problems ... 68
Rates, Services, and Performances of Municipal Water-Works Interconnections 69

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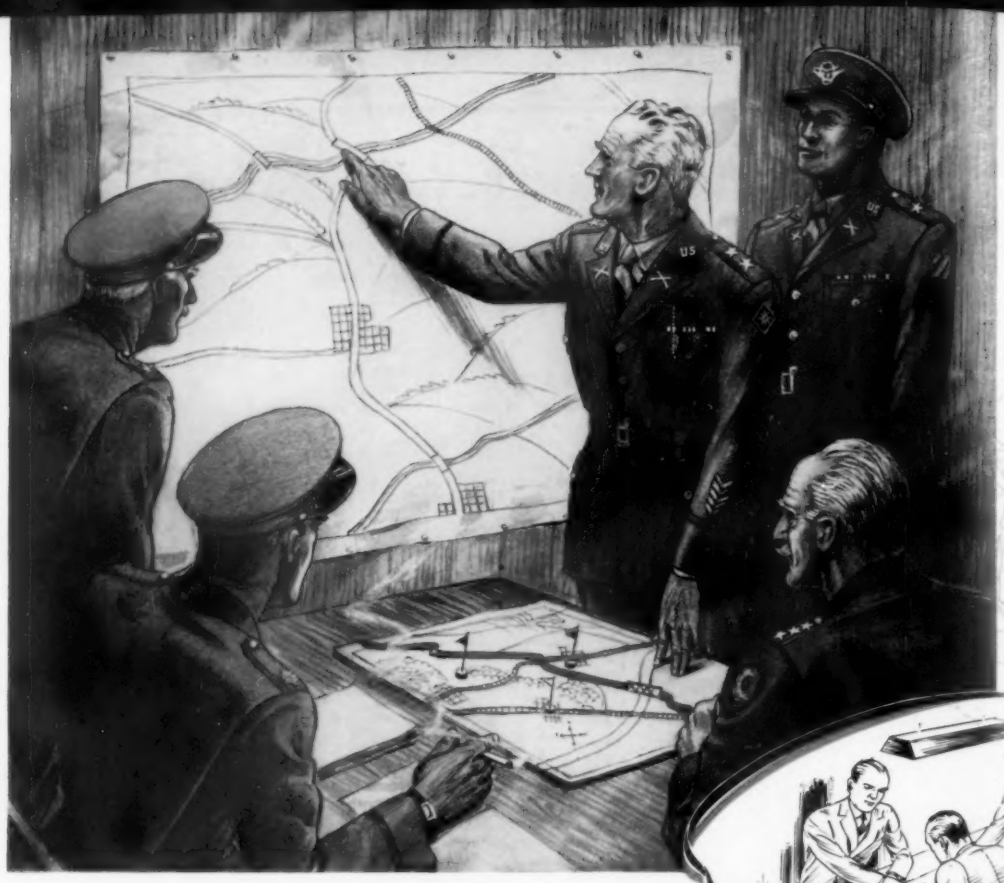
THE MUNICIPAL INDEX AND ATLAS, used in connection with the current advertisements in THE AMERICAN CITY, places local officials in the most favorable position to obtain all types of available equipment and supplies from manufacturers who desire to serve municipal government departments—555 pages, published annually by THE AMERICAN CITY MAGAZINE CORPORATION, 470 Fourth Avenue, New York, N. Y.

See pp. 17, 18, 21, 105, 107, 109 for catalogs and publications on municipal and civic subjects

For Index to Advertisements see page 124



From today's res
and planning will com
Pittsburgh-National W
Meters of tomorrow

Generals Plan Tomorrow's Battle While Winning Today's

ON the far-flung battle fronts of the World, brave United States Soldiers, Sailors and Marines are being directed by military strategists in waging the most scientific war ever fought. This is a war of men and machines. Weighted in our favor is the fact that our machines are products of the same industrial ingenuity that has made America the greatest nation of them all—the men who use them are those who, both by heritage and training, will provide the skilled hands to guide the way to ultimate victory.

Planning ahead is important. Sooner or later the war will end and the Water Works Industry and the manufacturing firms who supply equipment must be prepared to meet the changed conditions and ensuing problems that the cessation of hostilities will bring.

That we may keep to the forefront of progress, the research and development program of the Pittsburgh Equitable Meter Company and Merco Nordstrom Valve Company has been greatly accelerated. Our postwar planning is beyond the formulative stage. To be sure, the war must first be won, and to this end the productive capacities of our plants are now devoted, but like generals, industry, too, must plan for tomorrow's battle while winning today's. We all must take steps to insure that the things for which we are fighting will be perpetuated in a better peacetime world to follow.

We're Helping Win Today's Battles, Too!

The normal peacetime business of this company and its subsidiaries is designing and building meters, valves, regulators and similar equipment for measurement and control. At present the production of our five factories is entirely devoted to direct war goods and high priority items that contribute to essential military, naval and civilian services.

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Municipalities and the NRPB Reports

Post-War Planning Urged at All Government Levels

THE "American Beveridge Plan," submitted to Congress by the National Resources Planning Board on March 11, is made up of two reports*. One is concerned with the transition from war to peace and the longer-range development of an expanding economy. The other has to do with an expanded and unified social security plan as well as work and relief policies. Certain sections of both reports have particular significance for cities and other local governmental units, and in these the readers of THE AMERICAN CITY would be especially interested.

Preparing for Readjustments

In order to fulfill their "all-important" role in the national program of post-war readjustment, the states and local governments are urged to take legislative and administrative action to increase local government efficiency and to:

1. Assist private industry in the conversion of war plants and the development of new post-war industries;

2. Readjust war boom towns to maximum use of their new facilities, eliminating congestion and temporary structures as rapidly as possible and guiding migration of excess population;

3. Strengthen employment services to direct demobilized soldiers and war workers to new jobs;

4. Expand education, health, and welfare services (with appropriate safeguards) to meet the problems of the post-war transition period;

5. Establish, where they do not exist, and adequately finance, planning agencies to provide plans for post-war readjustments and for the development of unused resources;

6. Prepare carefully planned programs, engineering plans, and specifications for needed post-war public works;

7. Undertake large-scale urban redevelopment, passing necessary legislation enabling the acquisition of large blocks of land for this purpose;

8. Construct improved highway, air, and terminal facilities;

9. Facilitate the construction of needed new housing and the elimination of slums and substandard dwellings; institute land conservation and improvement measures; and

10. Build up fiscal reserves for post-war work through increased taxation and debt liquidation during the war period.

Recommendation is made for federal aid to and participation in several of these programs. For example, it is suggested that national and state agencies provide technical assistance and grants-in-aid to promote planning for long-time building of urban areas. Under the guidance of a projected National Transportation Agency, distribution of federal and state funds to municipalities would be revised to cope adequately with the urban transportation problem—with emphasis on provision of express highways and off-street parking in urban areas. Congress is asked for advance authorization of "procedures for grants, loans, guarantees of loans, leasing arrangements, or other devices for aids to state and local governments for non-federal [housing] projects effective upon appropriation of funds by Congress."

> ***"The physical structure of the city of the future should retain the benefits that come with the close living and working together of great masses of people, without incurring the adverse influences of overcrowding, congestion of traffic, and disorder which follow from the planless and random aggregation of living quarters and working places, and the improvisation and piece-meal development of service facilities and traffic lines."***

Local Governments and the Security Plan

In regard to administration of the various public-aid programs, it is suggested that "allocation of administrative responsibility between federal, state, and local governments be determined by reference to the capacity of the different governmental units for the exercise of specific financial, policy-forming, technical, and routine administrative functions, and the national importance attached to the attainment of the objectives of the given program." However, it is stated that "the advantages of administrative decentralization should be explored to the full, especially through a more constructive development of the regional basis of organization."

As for work programs, establishment of a permanent "Work Administration" is urged, which would cooperate closely with state and local public works and welfare agencies. In addition, state and local agencies are to be encouraged to "intensify efforts now made to develop long-range public works planning with a view to maximizing the amount of work given during periods of economic depression."

Federal Aid to Education, Health and Welfare

Public social services essential to health, education, and welfare would have to be greatly expanded in most communities in order to achieve the objectives of the plan. State and local child-welfare services for the prevention of child neglect and delinquency and for promoting adequate care of children requiring special attention would be expanded with the assistance of the Federal Government. Federal financial aid as needed, to assure educational opportunity for all young people above the age of compulsory school attendance, would take the form of grants to be distributed by the educational authorities. Aid to local communities to build hospitals is put forward as part of a broad health program.

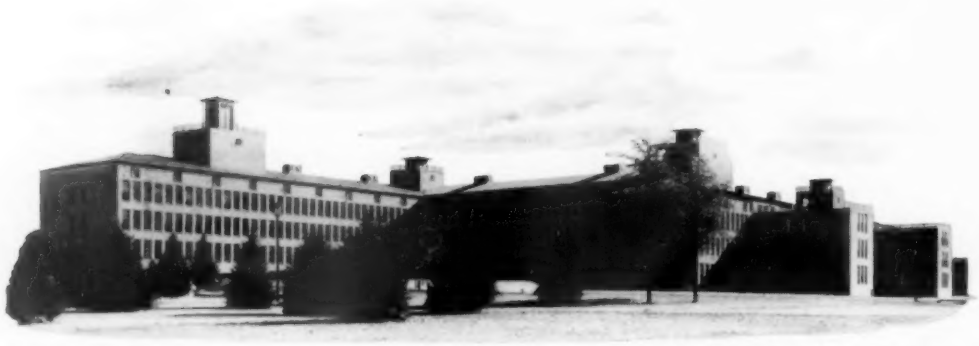
In every community there would be a central information office responsible for informing applicants of the availability of community resources, both public and private, and putting them in touch with the administrators of measures appropriate to their needs.

While stressing the need for maximum reliance on private industry to furnish jobs in the post-war years, the National Resources Planning Board urges "formal acceptance by the Federal Government of responsibility for insuring jobs at decent pay to all those able to work, regardless of whether or not they can pass a means test."

As President Roosevelt said, in his address submitting the two reports of the Planning Board to Congress, "We must not return to the inequities, insecurity and fears of the past, but ought to move forward towards the promise of the future." Local governments have an important part to play in answering this challenge. If they fail, increased centralization of power in Washington will be inevitable.

---

* "National Resources Development Report for 1943—Part 1, Post War Plan and Program" (v + 81 pp., 25 cents); and "Security, Work, and Relief Policies" (xii + 640 pp., $2.25). Both obtainable from the Superintendent of Documents, Washington, D. C.



A new building of the Bell Telephone Laboratories

Reason for Confidence

More than ninety per cent of American scientists are engaged in beating the Germans and Japanese.

More than ninety per cent of American scientific laboratory facilities are devoted to the same task.

American scientists are working at this job six or seven days a week, long hours, with few interruptions.

They are getting somewhere, too.

Every now and then the Germans and the Japanese have an unpleasant surprise.

They find that American science has caught up with them and passed them.

It is reassuring to us and discouraging to our enemies, for American scientific facilities are the greatest in the world. And they are functioning.

Little by little, some of the things that have been developed become public, but most of them you won't hear about until after the war.

But now, without the details, you can have faith that American research — industrial and academic combined — is rapidly giving our fighting forces an advantage.

Along with other American industry the Bell Telephone System has its own Bell Laboratories — the largest in the world — working overtime for victory.

BELL TELEPHONE SYSTEM

Your continued help in making only vital calls to war-busy centers is a real contribution to the drive for victory

Our Municipal Notebook

Pipes of the City

NEARLY every building of every town and city in the country is connected to the street with service pipes of copper, lead, lead alloys, galvanized wrought iron, or galvanized steel. Under nearly every street are pipes or conduits for water, sewage, gas, frequently for electricity, and sometimes for steam. A city government stocks up to 4,500 different types and sizes of pipe and pipe fittings. As the annual municipal pipe bill against cities in peacetime amounts to an estimated $50,000,000, it is desirable to keep up with the trend of design and practice.

The Municipal Index lists manufacturers and their products under eleven classifications of pipe. The first, alphabetically, is asbestos-cement pipe which, it is claimed, resists corrosive attack and is economical to install. Recently, fibre pipe has been put forward for use as connecting piping at sewage and water plants. Some municipalities choose ferrous piping and some non-ferrous for underground water services, each material having individual virtues. The economical choice of piping materials should be based on anticipated corrosive and physical conditions resulting from analytical and research studies together with service records over long periods of time. In an era of ersatz, it is smart to brush up on the fundamental values of the various metals and alloys for sewage treatment, so that when they are again common municipal market products, they will not have to be rediscovered.

Good water-works practice has long called for a flexible connection between the service pipe and the main in order to compensate for possible main travel. On the other hand, in the gas-utility field, domestic piping is connected to the main without the use of any flexible connection except a possible swing joint composed of pipe fittings. Is this practice due to the fact that the gas company generally installs and pays for the service line? Is the water department requirement that the service line be flexible due to the fact that the water consumer bears the expense? It is said that these two questions have not received forthright decisive answers. They should, so that a third question may be answered: "What is the most economical entirely satisfactory type of water-service connecting line?"

The service furnished by cast-iron pipe for water supply and distribution, and increasingly for sewers, is superior even to its high reputation. Only a few months ago the Troy, N. Y., water department replaced a section of an 108-year old main. A number of cities are reclaiming their old water pipe by lining it with Bitumastic enamel or cement and reinstalling it with their own forces. Riveted, welded, black wrought iron and coated steel pipe of 30 inches or more in diameter and in lengths up to 60 feet have been used for intakes and water lines. Prior to the war, corrugated-steel pipe, entirely protected by asphalt, was finding greater use both in manhole construction and in actual sewer lines. It is economical to construct and appears to be lasting.

Redwood pipe finds use as large supply lines connecting reservoirs with treatment plants. Its resistance to all types of decay and ease of installation are points in its favor.

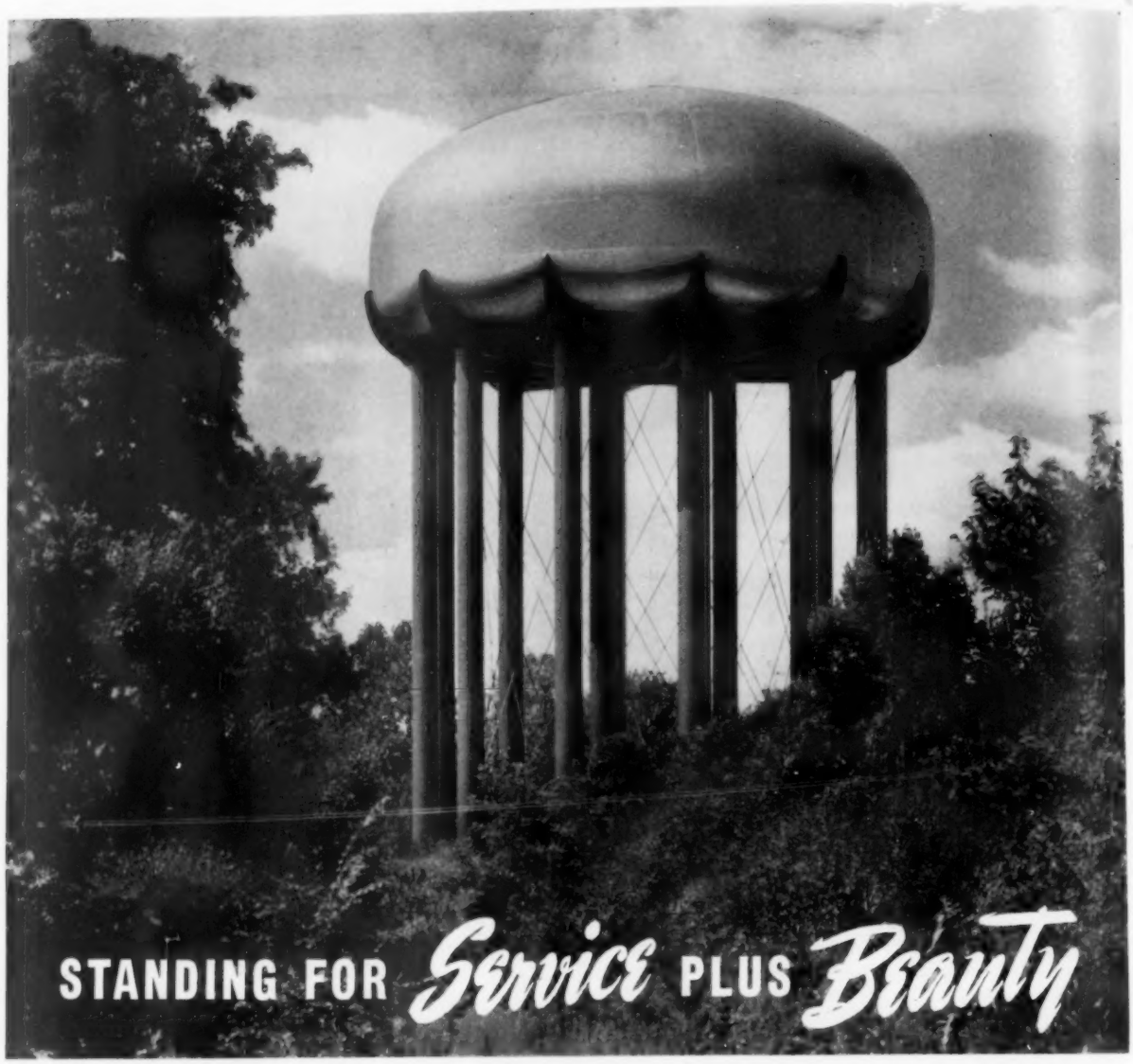
The fact that underground pipe is out of sight means that occasionally the design may not receive the attention it merits. Yet distribution lines require rather particular study by municipal engineers. Where sufficient evidence of the proper piping material to be used is not available, thorough analytical work should be performed before the piping material is chosen. The combined advice of your consulting engineer and the various manufacturers of piping material will result in a final choice not only of economical pipe but of more economical maintenance-free service as well.

Bending the Twig to Traffic Caution

INSTILLING traffic carefulness in the minds of children is probably more needful now than ever before. Traffic is heavier in many industrial cities. Dimouts make it deadlier at night. Where traffic has substantially decreased, there is even more reason for education against post-war volumes. Turn to page 89 where Lyne S. Metcalfe calls attention to certain new safety movies available to municipalities. Two shots are shown here.

STICKY WEATHER pH INDICATOR

This worker is in a small lab directly off a greenhouse. Although temperature and humidity are high, and fairly constant, his Leeds & Northrup pH indicator works without a trace of leakage, being designed for ambient temperature as high as 85F and relative humidity to 95F.



IN A HORTON elevated storage tank installation *beauty* and *utility* meet on a common ground. The part which is visible to the eye tells its own story of pleasing appearance . . . and the advantages of elevated water storage are familiar to municipalities whose leaders and water companies specified Horton elevated storage tanks as peacetime improvements.

One such installation, combining beauty and utility is shown above . . . a 1,500,000-gal. Horton radial-cone bottom unit at Indianapolis, Indiana. An unusual feature of this tank is the utilization of four cylindrical columns instead of one large central riser. One of the tubular columns serves as the water intake, while another houses the ladder used to gain access to the interior of the tank, as well as the overflow pipe. This unit has a 30-ft. range in head and is 92 ft. to bottom.

The Indianapolis Water Company has other Horton elevated storage tanks throughout its system to help maintain adequate pressure in the city and its suburbs. One of these units is a 1,500,000-gal. radial-cone bottom tank which was placed in service in 1931. It is 72 ft. to bottom and has a range in head of only 25 ft.

These installations have made it possible to maintain adequate uniform pressures even during peak load periods.

CHICAGO BRIDGE & IRON COMPANY

BIRMINGHAM • CHICAGO • CLEVELAND • HOUSTON • HAVANA
NEW YORK • PHILADELPHIA • SAN FRANCISCO • TULSA • WASHINGTON

Wartime Water Works Operation

Gate Valves

HERE is what Alvin J. Kuecker, Superintendent of Distribution System, Elgin, Ill., says every water department should know about its gate valves in order to be ready for wartime emergencies:

The location and size of *every* valve.

The number and direction of turns to open. Many old valves still giving good service do not indicate the direction of turns.

The condition of the stuffing-box bolts. These should not be allowed to corrode but should be painted with a rust preventive so that they can be turned easily at any time.

The condition of the packing. Oiled jute has a tendency to dry out and deteriorate; graphite packing keeps its life much longer.

The date each valve was inspected last, how it was left, and what its condition was. Valves should be inspected conscientiously at two or three-year intervals. The valves should be closed and opened by hand, and any that are found closed should be reported.

Mr. Kuecker emphasized these points at the meeting of the A.W.W.A. held October 20-21 in Wausau, Wis. They are the result of his experience during 10 years of gate-valve maintenance in Elgin, Ill. Previous to his instituting this program, the only record was a badly out-of-date wall map. An organized inspection, which was started in 1932, showed the valves to be in deplorable shape. The average cost for inspection and packing was $1.46 per valve. This dropped to $.43 per valve in 1936 during the second inspection, and to $.21 in 1938.

A. W. W. A. Elects Officers

SAMUEL B. MORRIS has been elected President of the American Water Works Association for the year 1943, according to an announcement by Harry E. Jordan, Secretary. Professor Morris is Dean, School of Engineering, Stanford University. He received the Diven Medal in 1933.

Samuel F. Newkirk, Jr., Engineer and Superintendent of the Board of Water Commissioners, Elizabeth, N. J., was elected Vice-President, and W. W. Brush, Editor of Water Works Engineering, was reelected Treasurer.

Plans for the 1943 convention which will be held June 15 to 18 in Cleveland, Ohio, are under way. The program will concentrate on both wartime water-works practice and peacetime planning.

Victory Garden Rate on Scientific Basis

THE Los Angeles Department of Water and Power is encouraging the patriotic growing of victory gardens in a thoroughly scientific manner. Under a schedule which was established last spring, water used exclusively for these gardens costs only 4.6 cents per 100 cubic feet instead of the usual domestic rate of 14.8 cents.

However, the department knows that the average amateur gardener overirrigates his garden and therefore has limited the amount available at the special rate. This limit is based on U. S. Department of Agriculture estimates that 24 inches of water over a garden per year are ample. The allowance therefore is made for 100 cubic feet of water for each 200 square feet of garden. Additional consumption is billed at the regular rate.

The department, furthermore, will recognize only a bona fide vegetable garden. It must be at least 200 square feet in size, and when inspected by a department representative—usually a meter reader on his regular rounds—it must be growing.

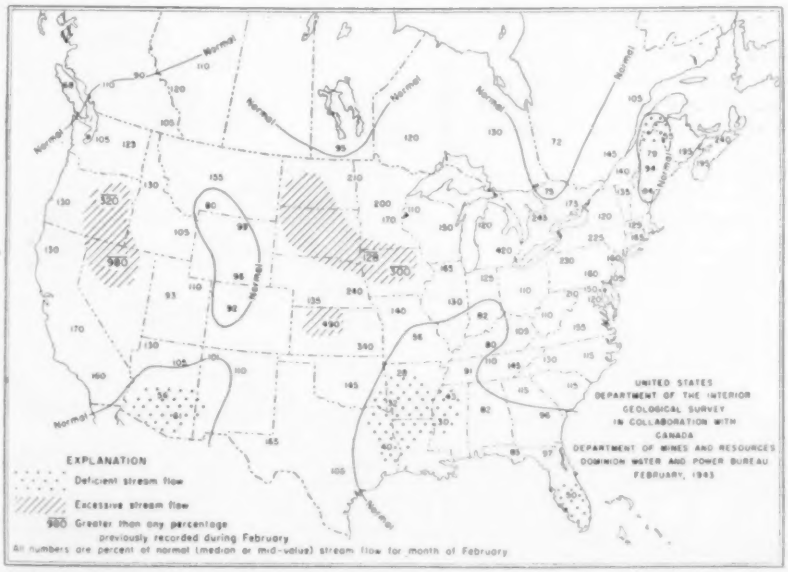
In calculating the bill, the department adopts the practice of calculating the entire amount at the regular domestic rate and then allowing the victory garden rate as a rebate or credit.

Water Resources—February

STREAM flow during February was above normal in most of the United States and Canada, a condition resulting from the carry-over effects of unusually favorable January flow augmented by runoff from melting snow. Water stored for power, irrigation, and municipal supplies was reported to be good.

The generally favorable country-wide pattern of ground water conditions was marked by increases in the New England states and along the Pacific Coast and by decreases in the Gulf States from Florida to Louisiana and in Arizona.

Continued deficiencies in precipitation are being reflected in below-normal stream flow and receding water levels from Florida through Alabama, Mississippi, Arkansas, Louisiana, and neighboring states with drought conditions continuing in southern Florida and expanding in the lower Mississippi Valley. Floods associated with ice jams were common in southern Minnesota, Iowa, North and South Dakota and eastern Montana. Intensive thaws and moderate rains aggravated this condition in Iowa and produced record-breaking runoffs in eastern Oregon and northern Nevada.


Normal
UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
IN COLLABORATION WITH
CANADA
DEPARTMENT OF MINES AND RESOURCES
DOMINION WATER AND POWER BUREAU
FEBRUARY, 1943
EXPLANATION
Deficient stream flow
Excessive stream flow
980 Greater than any percentage previously recorded during February
All numbers are percent of normal (median or mid-value) stream flow for month of February

A sketch showing the conditions of United States water resources during February. This was compiled by observers with the U. S. Geological Survey.

SAIGON, INDO-CHINA...

Half Way Around the World

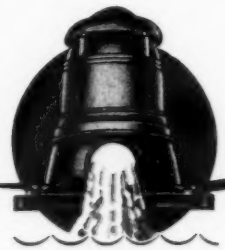
Looking south across the China Sea toward Singapore stands the city of Saigon, Indo-China. There also, half way around the world, you will find Layne Wells and Pumps producing millions of gallons of water daily.

Layne Wells and Pumps are in operation in all parts of the world. Their skillful design, sturdy construction and amazingly long life features are known to engineers everywhere. Facing a world of the keenest competition, Layne Wells and Pumps have long been rated as the finest that skill and experience can build.

Primarily designed and built for peace-time work, Layne Wells and Pumps, under rigorous war-time overload conditions, are today making a magnificent record. Failures are almost unknown —a splendid tribute to the company's slogan of "Better Built for Better Service."

Production is now nearly 100 percent for the war effort, but every effort is being made to keep private and municipal installations in operation. For literature, address,

LAYNE & BOWLER, INC.
Memphis, Tenn.



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BOSTON . . . . . MASSACHUSETTS
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DALLAS . . . . . TEXAS
LAYNE-WESTERN CO. . KANSAS CITY, MO.
CHICAGO, ILL. . . . . OMAHA, NEBRASKA
LAYNE-WESTERN CO. OF MINNESOTA
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INTERNATIONAL WATER SUPPLY, LTD.,
LONDON . . . . . ONTARIO, CANADA

The above companies are affiliates of Layne & Bowler, Inc., Memphis, Tenn.

LAYNE PUMPS & WELL WATER SYSTEMS

WORLD'S LARGEST WATER DEVELOPERS

REPAIRS and maintenance of municipal and private industrial Water Systems should not be neglected. The Layne Organization is endeavoring to service existing installations with necessary repairs and parts. If your wells and pumps need attention, you are urged to write, giving full details of your requirements. No obligation.

Street Construction and Maintenance

Concrete Manhole Covers

Two views of Pittsburgh's concrete manhole covers. Notice the pick holes for removing the cover from the frame.

"IF you can't buy 'em, make 'em yourself," has been the modern resourceful watchword for municipal construction. The Department of Public Works, Pittsburgh, Pa., showed how it could be put to work on the urgently needed Donora Street paving project.

Manhole covers were needed badly to complete this important improvement. They were required for use on catch basins and curb inlets that handle the storm water drainage. Since parts of the street are on a 20 per cent grade, the handling of storm water constitutes a real problem.

Construction Delays

The Ben Construction Company had been making a valiant effort to complete the project but had been held up for several weeks because of these covers. Consequently engineers with the company decided to design their own covers, using concrete and short pieces of ½-inch reinforcing bars. After a period of study and experimentation, they submitted a design to the Department of Public Works which was subsequently approved.

Under the original design, standard cast-iron manhole lids were not interchangeable with catch basin lids. The manhole lids were designed for heavier loads with non-skid features with long-wearing qualities. On the Donora Street project the manhole castings already were in place, and the problem was one of constructing catch basin tops without the use of cast iron.

Since the completion of this project, according to C. H. Barrett, Design Engineer, the city of Pittsburgh has designed standard manhole frames and covers and standard catch basin frames and covers made with reinforced concrete with the lids interchangeable. Several defense housing units already have accepted this design for construction of their sewerage systems.

Prompt Maintenance Pays in Ft. Wayne, Ind.

THE remarkably low street-maintenance costs enjoyed by Ft. Wayne, Ind., are a definite reflection of this city's policy of making first-class repairs while the damage to the streets is still small. Maintenance costs per square yard for 1942 were $0.0057, a reduction of about 5 per cent compared with 1941. Asphalt pavement in Ft. Wayne totals 2,720,662 square yards. The total cost of repairing this tremendous yardage was $26,774. The average age of the pavements was 24.8 years.

"Vulcanizing" Repairs

This city has been using the "vulcanizing" method of street maintenance for the past 16 years. This consists of merely cleaning the damaged surface and then applying a hot plant-mixed patch, the mixture containing a solvent which helps cause a bond to the old surface. Repairs are made quickly with a minimum of inconvenience to the motorist. Ft. Wayne officials prefer this method since the concrete base course has deteriorated badly through old age.

The policy of making repairs immediately also has been followed during this 16-year period. Repairs are performed whenever required unless the streets are covered with snow or ice, or heavy rains are falling. Mixtures can be delivered for patching even when the temperature is as low as 10° above zero.

Materials and Equipment

The chief equipment used by the city consists of a Heatherington and Berner asphalt plant, a five-ton tandem Buffalo-Springfield roller. The repair mixture is made from 50 to 60 penetration asphalt cement, standard asphalt sand, and a limestone graded from No. 8 mesh to No. 200 with filler of No. 200 mesh materials. A fine graded mix is required so that "feather-edging" of joints can be readily performed without the possibility of scaling.

W. H. Droege, superintendent-chemist, has had charge of the design of the mixes and supervision of street maintenance operations.

Equipment Pooling for Street Maintenance

THE Governmental Division of the War Production Board is urging both city and state agencies to pool equipment in order to assure adequate maintenance of roads and streets during wartime, according to a report by the American Municipal Association. WPB warns that little or no new street construction and maintenance equipment will be manufactured this year.

Government officials feel that ample equipment is available and that the problem lies in its distribution. The Governmental Division already has asked each state highway commissioner to consider the plan and make suggestions. A few state associations of county units, and contractors to lend or rent equipment which otherwise would be idle.

The arrangement will call for municipalities, state highway departments, county units, and contractors to lend or rent equipment which otherwise would be idle.

If You Are Talking About "The Good Old Days"

IN 1860 only the biggest cities had much paving, and even in these the streets were always filthy. In Philadelphia and New York the city contracted for the cleaning of the streets; but in New York, at least, the contractors failed to carry out their duties faithfully, and property-owners sometimes had to hire the streets cleaned. In Boston the city did its own street cleaning, but the results were not much better. Baltimore, in the fifties, put street-cleaning in charge of the commissioner of health. In few other cities was there any official action at all.

—Quoted in *The Standard of Living in 1860*, by Edgar W. Martin.

YES, sir, mister—and it's a good town, too . . . good because our officials looked forward to this day when the war would be over—and made their plans then.

They foresaw a period of unavoidable high taxes. Wars aren't paid for in a day, you know. They knew that they couldn't do much about reducing the war bill, so they looked around to see where postwar tax burdens could be eased up. And they found a way. It was through municipal ownership of a Diesel-driven light and power plant. As soon as the war was over, they were ready to go — and pretty soon there was a Fairbanks-Morse Diesel-powered light plant on the job.

Today, we have practically no city tax assessments. The power plant earns enough profit to make them unnecessary. It sure has made a better town to come home to!

Plan Today To Ease Postwar Tax Burdens with F-M Diesel Generating Units

FAIRBANKS-MORSE

DIESEL ENGINES
PUMPS
MOTORS
GENERATORS
SCALES
WATER SYSTEMS
FARM EQUIPMENT
STOKERS
AIR CONDITIONERS
RAILROAD EQUIPMENT

Diesels

Post-War Construction Plans

How Much Assistance Can Cities Expect?

THE cost of constructing sewage-treatment facilities should rightfully be shared by the municipality, state and federal governments, according to C. J. Velz, Head, Civil Engineering Department and Professor of Sanitary Engineering at Manhattan College, New York, speaking at the annual meeting of the New Jersey Sewage Works Federation on March 26. This distribution of costs, he feels, should be based on a system similar to the method by which state highways are financed, using both state and federal funds, depending on whether the road is interstate in aspect.

"Both the state and the federal government should have an interest in the municipality's sewage-treatment, if the contributing stream is either state or interstate in character," Professor Velz stated. "Municipalities themselves are not so directly affected by the pollution that their own sewage contributes to the stream, and would of course rather spend the money for other improvements such as schools, hospitals, or parks."

Drainage Districts

The most intelligent method of planning sewage treatment is to study it from the aspect of the entire drainage area, he stated. Hit-or-miss construction of treatment plants will result only in the spotty solving of pollution problems. Professor Velz compared it to the construction of a road by making the first mile a superhighway; the second, a two-lane road; the third, a single lane; and the last a mudhole.

The practice of basing sewerage systems on political districts alone was strongly discouraged. "Intergration of natural districts," he said, "will make it possible for a single plant to serve two or more municipalities close together at a real saving. These economies must not be overlooked merely because of the legal or political difficulties that they involve, since both of these problems can be overcome to the mutual benefit of everyone."

"Don't be afraid to design a municipal plant to handle industrial wastes," he urged. "Who is better fitted to handle this treatment than the trained municipal operator? Nothing will enhance your professional status more than to show your ability to handle these wastes, difficult though it may be."

Professor Velz stressed the importance of having thorough construction plans prepared and ready for post-war work. He pointed out that industrialists feel that it will take from two to five years to transpose our industries from war to peacetime activities and during this period post-war work of this nature is bound to play an important part.

Concentrating Sludge Economically

STUDIES on the thickening of various sludge types at the Los Angeles Bureau of Water Works and Supply have disclosed a number of significant results. These were discussed by R. F. Goudey, Sanitary Engineer for the Bureau, at the annual meeting of the American Society of Civil Engineers, held January 20-22 in New York.

The control of bulking is important, he emphasized, and all practices should be adopted that will bring this about, particularly where high percentages of solid removals are required. This is true whether fresh, activated, or digested sludges are involved. He asserted that bulking is not fundamentally biological, because activated sludge can be bulked instantaneously by physical means long before bacteria or fungi could possibly multiply to account for the phenomena. When small amounts of activated sludge are added to pure pulp suspensions, the sludge becomes distributed through the pulp and appears bulked. Granite dust, sand, lime, or dilution with water in all these cases can reduce the "bulk" from 95 per cent to 30 per cent almost instantaneously.

The most economical method of removing solids of low moisture content is by controlling them in the primary clarifier, he feels. Their removal may be facilitated by pH control of the incoming sewage, mechanical flocculation, timing of the sludge, removal, washing, and dilution.

Excess activated sludge can best be concentrated by removing its equivalent as aeration tank liquor, diluted with water 1,200 ppm, if necessary, and treated with lime occasionally, followed by sedimentation under a one ppm chlorine blanket. The withdrawal of aeration tank liquor should be continuous.

He pointed out that, in his opinion, where chemical treatment of thickened sludge is to be followed by vacuum filtration or rapid draining on sand beds, digestion of sludge is unnecessary and wasteful.

Sludge Gas for Truck Power—A Few Comments

AN interesting discussion of Mr. Weber's studies of the use of sludge gas for automobile or truck power, discussed in the March issue of THE AMERICAN CITY (see p. 13), was received from Paul A. Uhlmann, Consulting Engineer, Columbus, Ohio. Mr. Uhlmann sends us a clipping from a 1936 German newspaper reporting the use of sludge gas for this purpose. It tells of two sludge digesters erected at the sewage treatment plant at Muhlhausen, Germany, that increased the production of sewage gas 35,000,000 cubic feet. The article goes on to state that 110 trucks are driven by this sludge gas, which means a daily saving of 520 gallons of gasoline.

Military Objectives?

This, possibly, is another reason for considering at least German sewage-treatment plants as military objectives and shows how thoroughly all natural resources in that country were mobilized for war.

Mr. Uhlmann states that at the Celina, Ohio, sewage-treatment plant, a GMC truck engine powered by sewage gas has been used for the last three years to drive a blower and has been running continually for 16,000 hours without breakdown. Operators have such confidence in this unit that they have dubbed it "old faithful."

Rene Berg, French engineer and manufacturer, whose work was mentioned in the March issue, objects strenuously to reference in the article to a German "victory." "The Germans may have occupied France," he states, "but they have not yet won a final victory. The plants I built served France and not Germany. They were necessary because the Germans stripped my country of all resources and reserves."

FOR *Assured* AIR RAID PROTECTION

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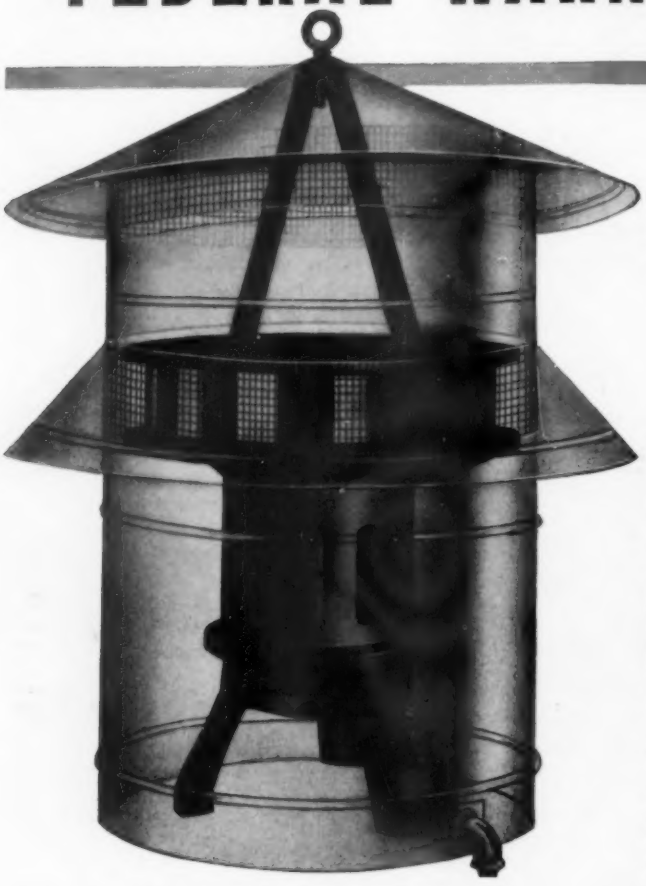

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- All-weather performance.
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- Easy installation.

The system that gives full protection regardless of weather, topography, and local noise levels.

FEDERAL experience in air raid warning systems goes back to the early days of the war, when our engineers went to Europe and proved our system under actual air raid conditions. Since that time our engineers have made installations in many American cities—installations that have proved their effectiveness in test after test.

The FEDERAL System—a multiplicity of small sirens, closely spaced—will give your community *maximum protection at minimum cost.*

Take advantage of FEDERAL'S broad, practical experience in siren and signal device engineering.

WRITE FOR BULLETIN!

FEDERAL ELECTRIC CO., INC.

SIREN HEADQUARTERS

8744 South State Street — Chicago, Illinois

Public Safety

Women Become Policemen As Police Become Soldiers

POLICE CHIEF Charles W. Dermid of Asheville, N. C., with his eight women traffic officers who are responsible directly to their own captain, are shown at the right. They wear red capes and red overseas caps, are not armed with pistols or blackjacks, but do carry books of traffic tickets. They were given several weeks' training at street crossings to prepare them for service at the larger schools of the city. If more policemen go into army or war plants, more women officers will be employed to handle the downtown intersections. All these eight pioneers, aged 32 to 40, are mothers of schoolcihldren. Joining the force in midwinter, not one was absent from her post during the first two months of service.

Women Officers of Asheville and Chief Dermid

Getting Police Radio

DURING the early months of 1942 the outlook for obtaining new police-radio equipment was dark indeed. Then law-enforcement agencies and the radio manufacturing industry stated their case to the War Production Board, which set up a radio reserve pool. Certain manufacturers were given an order by the Defense Supplies Corp., a subsidiary of RFC, to manufacture a quantity of two-way police radio equipment.

W. E. Dunleavy, Deputy Fire Chief and Superintendent of Fire Alarm in Belleville, N. J., (left) discusses new two-way FM "emergency" radio equipment with D. L. Chestnut, G. E. electronics engineer, at New Jersey section meeting of International Municipal Signal Association at Harrison. The equipment is being manufactured for the WPB radio reserve pool which Mr. Chestnut explains in his letter.

Much freedom of action is allowed by WPB in the choice of radio equipment. Individual cities are permitted to proceed in substantially peacetime manner in the selection of the manufacturer from whom they wish to purchase.

Police departments needing new police radio equipment, should: (1) be sure the need is vital; (2) select the equipment needed; (3) submit an application through the manufacturer to the War Production Board for this equipment on a form which can be obtained from the manufacturer; (4) submit an application for construction permit to the Federal Communications Commission, and the manufacturer will assist in filling out the form.

D. L. CHESTNUT,
Electronics Engineer,
Radio, Television and Electronics Dept.,
General Electric Co., Schenectady, N. Y.

New Radio Keeps Coaches Flowing

A NEW two-way frequency modulation radio system is keeping Cleveland coaches moving at highest efficiency. The equipment consists of a 250-watt General Electric dispatcher transmitter and ten 25-watt mobile units. The headquarters transmitting antenna is mounted 270 feet above street level. Delays in car service have been shortened or eliminated by the ability of zone supervisors to reach a congested area quickly, to restore the flow of vehicles, or to direct the replacement or repairs of damaged equipment.

Burned Truck Nets 87% Cost of New

A TRUCK owned by the City of Norfolk, Va., and assigned to the street-cleaning division, was partially destroyed by fire on January 14, 1943, according to City Manager Charles B. Borland. The insurance company paid $925 and in addition the old chassis was sold for $150, a total of $1,075 to apply to the purchase of a new truck costing $1,225.

IN THIS WORLD AFIRE . . .
WITH A WAR OF MACHINES AND MEN

Ward LaFrance is devoting its production resources to making huge ten-ton Tank-Recovery Wrecker units and Pumpers for the Army and Navy. Our many years of experience in turning out fire apparatus, engineered to the highest standard of ruggedness, now serve us well when we are called upon to build equipment so necessary in the conduct of this war.

Ward LaFrance fire apparatus is still being manufactured in limited quantities for civilian service and can be supplied, if your needs are urgent.

Write us for detailed information and advice about specially engineered Ward LaFrance apparatus for your department. We shall be happy to cooperate with you in every way.

WARD LAFRANCE

WARD LAFRANCE TRUCK DIVISION

ELMIRA, NEW YORK

Keep Up-to-Date on New Equipment

Please check over the following list of interesting catalogs obtainable free of charge and either write direct to the manufacturers for their literature, or, if you prefer, put a circle around the identifying numbers below to indicate the catalogs you want, mail this coupon to The American City Magazine, 470 Fourth Ave., New York, and we will see that the catalogs are sent to you without expense or obligation on your part. 4/43

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Name ..... Position .....

Address .....

Adequate Air Raid Warning Signals

579. Bulletin 29 issued by the Foster Engineering Co., 133 Monroe St., Newark, N. J., gives the information you need in order to put your air raid warning system on an adequate basis. It will answer questions bound to arise regarding how well the signals can be heard, how easily they may be operated, and what their cost to the community will be. This company states further, that these sirens are in stock and available.

Is Your Sewage Gas Corrosive?

580. An interesting little test kit may be obtained from the Connelly Iron Sponge & Governor Co., 3154 So. California Ave., Chicago, Ill. It will help you determine whether corrosive action is going on in your plant because of sewage gas. You are instructed to expose the test paper in the kit to the gas and return it. Company chemists will determine by a laboratory evaluation whether the gas contains sufficient hydrogen sulphide to cause difficulty.

Gate Valves

581. In order to judge properly the place that gate valves play in your water-works operations, you should have complete details describing them. The Eddy valve has a number of features which it will pay you to study. Write to Eddy Valve Co., Waterford, N. Y.

Power for Municipal Utilities

582. When an independent source of power is required, it will pay you to investigate the use of diesel engines. Nordberg Mfg. Co., Milwaukee, Wis., will furnish a wide range of literature and bulletins on diesel power.

Concrete Curing Materials

583. If you are interested in material that will help you cure concrete more completely in order to insure its strength and durability, write for the illustrated literature furnished by the Thompson Materials Corp., 204 West St., New York. This company will be glad to give you information and estimates on a wide range of material, including the Hunt Process, Ritecure, Cotton & Fibre Mats, Salt Hay and Paper.

Street Flushers

584. Although new street flushers are difficult to obtain for the duration, city officials will be wise to plan their post-war municipal operating procedure using this equipment. In order to have information telling them what they may expect from these machines, write to E. D. Etnyre & Co., Oregon, Ill.

Cast Iron Jointing Compounds

585. You may obtain information on the dependable jointing compound for bell and spigot water mains known as Hydro-Tite, from the Hydraulic Development Corp., 50 Church St., New York. This is a self-caulking sulphur base jointing compound manufactured in powder form to insure uniformity and quick melting.

Street-Lighting Studies

586. Although street-lighting construction is virtually at a standstill, the Union Metal Mfg. Co., Canton, Ohio, urges that municipalities study lighting requirements as part of their post-war development program. The advice of its trained engineers, this company points out, is available to assist in the planning of such a program.

Pump Construction Features

587. Various details are outlined in the literature on pumps furnished by the Pomona Pump Div., Joshua Hendy Iron Works, Pomona, Calif. Its vertical design, its semi-open impellers, its water lubrication features, and open-drive shaft all deserve attention.

Selected Water Supplies

588. The new book, "Water Production for Industrial and Municipal Use," issued by the Ranney Water Collector Corporation of New York, Heyburn Bldg., Louisville, Ky., tells an interesting story on this method of water supply. It outlines the method of selecting ground water having characteristics most favorable for municipal requirements, thus avoiding the need for excessive treatment. It contains detailed drawings and photographs illustrating the Ranney principle of horizontal screen pipe projected into the water-bearing strata.

Portable Fire Pumps

589. Catalogs may be obtained from D. B. Smith & Co., 421 Main St., Utica, N. Y., describing the portable Indian fire pumps. These small compact units allow an operator to carry 5 gallons of water on his back, move about quickly, and avoid fire, with no need to stop and pick up the extinguishers. No chemicals are required.

Municipal Training by Mail

590. A special circular will be furnished by the International City Managers' Association, 1313 E. 60th St., Chicago, Ill., giving information on this organization's practical correspondence courses in the municipal field. The heavy drain on top administrators for municipal operation has created a need for trained personnel. These courses will help you prepare for advancement.

Anthracite Filter Beds

591. The information on Anthrafilt, a filtering medium obtained from anthracite coal is extremely interesting. You can obtain this by writing to the Anthracite Equipment Corp., 19 Rector St., New York.

Maintaining Elevated Storage Tanks

592. Pittsburgh-Des Moines Steel Co. has established a four-point program that will help you maintain your elevated water tower for the duration. This company, furthermore, will furnish you paint specifications and detailed recommendations that will help carry out this maintenance program. Write to the Pittsburgh-Des Moines Steel Co., 3412 Neville Island, Pittsburgh, Pa.

Laying Pipe Without Trenching

593. The booklet published by the Giant Mfg. Co., Council Bluffs, Iowa, describes the Giant pipe pusher that will install pipe up to 15 inches in diameter, pushing it through the ground at the rate of 1 to 5 feet per minute, thus avoiding the heavy expense of trenching. When writing for your booklet, address Dept. P.

Sewage and Storm Water Pumps

594. Non-clogging sewage and storm water pumps are the subject of bulletins that will be furnished by the Morris Machine Works, Baldwinsville, N. Y. Built in standard and high speed types, both horizontal and vertical, they are equipped also with screw and mixed flow propellers.

Water Meters

595. New bulletins by the Hersey Mfg. Co., South Boston, Mass., describe the new Magni-Vision all glass bonnet, which is the latest improvement on this company's water meters. This magnifies the face of the dial, allows greater illumination, makes faster and more accurate reading.

Garbage Collection Truck Bodies

596. You can obtain complete details on modern Heil garbage collection units designed to handle bigger loads, to operate faster and more efficiently. To get this information write to The Heil Co., Milwaukee, Wis.

(Continued on page 18)

BUFFALO-MADE
NIAGARA
WATER METERS

METER VALUES PROVED BY WARTIME CONDITIONS

A year ago some people were asking, "Is the continued manufacture of water meters necessary during the war?" After investigation, the War Production Board said, "Yes,—but conserve copper."

Since then, meters have helped stretch water supplies further, have minimized shortages. And in a great number of cities, these iron-case meters are proving to be more than a wartime expedient. They rate consideration as a permanent feature along with other equipment such as valves and hydrants that have cast iron bodies and bronze works.

The success of cast iron meters is especially good where waterworks use the standard cast iron meter —the Niagara. For 50 years it has been continuously and successfully built with galvanized cast iron casing. Wartime limitations have not changed any essential features nor cheapened its quality.

If you actually should use bronze case meters, your Niagara Meters can be economically converted after the war by changing the casings to cast bronze, for working parts are fully interchangeable.

BUFFALO
METER COMPANY
2902 MAIN STREET BUFFALO, N. Y.

WHICH OF THESE CATALOGS WOULD YOU LIKE?

(Continued from page 17)

Finding Buried Pipe

597. Fisher Research Laboratory bulletin "The M-Scope" tells how you can trace your underground pipe lines when records do not locate them clearly. It describes equipment that determines the exact position of buried pipe or metallic conductors, pipe bends, dead ends, valves or any of a number of other hard to find water works services. It traces the exact course of an underground line without contact with the line itself, and notes the difference between a buried pipe and a single metal object. Working on a recognized scientific basis, it eliminates exploratory excavations and prevents other accidental damage to other unknown lines in the way of trench or ditch diggers. Write to the Fisher Research Laboratory, Palo Alto, Cal.

Aerial Fire Ladders

598. Detailed information and literature may be obtained from Peter Pirsch and Sons, Kenosha, Wis., describing the Pirsch aerial ladder trucks. This popular type of fire-fighting apparatus is rapidly displacing the old hook and ladder city service truck.

Lead Melting Furnaces

599. One of the features in the catalog furnished by the Joseph G. Pollard Co., Inc., 143 Ashland Pl., Brooklyn, N. Y., on pipe line equipment, is the Pollard melting furnaces. One of these small, sturdy furnaces will melt 125 lbs. of lead in 20 minutes. Another, equipped with wheels, works even faster, melting 200 lbs. of lead in 15 minutes. It is equipped with a gasoline vaporizing type burner and with torch equipment that is detachable and can be used for melting lead out of pipe joints and thawing out ground in winter excavation.

Street and Airport Equipment

600. An interesting bulletin on machinery for construction and maintenance of airports and streets has been published by White Mfg. Co., Elkhart, Ind. It covers traffic line markers, asphalt paving plants, concrete vibrators, as well as tar kettles and other numerous items of equipment. When writing ask for Catalog No. 32-A.

Sewage Plant Equipment

601. Four important bulletins have just been published by Pacific Flush Tank Co., 4241 E. Ravenswood Ave., Chicago, Ill., covering its new line of aerators and supernatant selectors. The subjects cover new pre-aeration of sewage and grease removal, pretreatment of laundry and trade waste, supernatant treatment and supernatant selectors for digestion tanks. This company will furnish not only these informative bulletins but also will give you specific information relative to your sewage-treatment problems.

Zeolite and Iron Removal Filters

602. If you are interested in the smaller type of softener to treat your municipal water supply, the bulletin issued by The McKays Co., St. Paul, Minn., describing this company's Superior water softener, will give you the information you desire. This describes softeners ranging in size from a small household softener to the moderately large municipal installation performing the work of softening or iron removal. When writing ask for bulletin No. 186.

Sewage Treatment Design Data

603. A new bulletin issued by the Lakeside Engineering Corp., 222 W. Adams St., Chicago, Ill., gives complete and interesting data on sewage treatment processes suitable for municipal work. It is filled with tables, illustrations, and layouts that will meet a large number of applications. It also gives information on how to operate equipment and avoid the customary problems of ponding, odors, flies, and freezing.

Spun Centrifugal Cast Iron Pipe

604. A handy catalog will be furnished by the Warren Foundry & Pipe Corp., 11 Broadway, New York, describing the various types of cast-iron pipe that this company manufactures. The Warren Spun Centrifugal pipe is manufactured in sizes ranging from 4 to 16 inches. Cast-iron pipe, manufactured by methods other than the centrifugal, range in size from 2 to 84 inches.

Cast Iron Pipe and Fittings

605. A 44-page bulletin is available from the R. D. Wood Company, giving data on cast iron pipe and fittings as well as information on fire hydrants and gate valves that this company manufactures. The data are particularly valuable to engineers and city officials who have occasion to design and lay out distribution lines using cast iron pipe. When writing to the R. D. Wood Company, 400 Chestnut Street, Philadelphia, Pa., ask for the bulletin "Cast Iron Pipe and Fittings."

(Continued on page 21)

WHICH OF THESE CATALOGS WOULD YOU LIKE?

(*Continued from page 18*)

Wellpoint Systems

606. If you would like information on dewatering ground wtih unusually high water tables or the furnishing of emergency water supply systems, write for the new 60-page illustrated catalog entitled "Griffin Pointed Wellpoint Facts." This catalog, furnished by the Griffin Wellpoint Corp., 881 E. 141st St., New York, describes wellpoint systems and jetting pumps.

Municipal Insurance

607. The Engineering Department of The Home Fleet of Insurance Companies, 59 Maiden Lane, New York, will furnish assistance particularly designed to help municipal officials plan their insurance programs intelligently. Realizing the special problems involved in protecting city property, the Engineering Department has made particular studies along this line and invites inquiries from officials of a city.

Boiler Feed Water Treatment

608. The Cochrane bulletin No. 4009 gives information on the acid treatment of feed water by the hot process water softeners and zeolite softeners. They are designed to allow the use of a pH controller, making the apparatus highly accurate and sensitive. With this addition the pH can be maintained at a constant value, irrespective of the changes in rates of flow. Write Cochrane Corp., 17th and Allegheny Ave., Philadelphia, Pa.

Do You Need a Desk Pad Calendar?

609. Celebrating its 75th Anniversary, The American Well Works, Aurora, Ill., has prepared a useful desk-size calendar interspersed with pages describing pumping, sewage treatment, and water purification equipment. Write for your copy to this company.

Sewage Shredders

610. Facts on the "Non-Clog" Gruendler sewage shredder can be obtained from the Gruendler Crusher & Pulverizer Co., 2915-17 N. Market, St. Louis, Mo. These useful machines will disintegrate rags, stocks, garbage, floatables and fibrous materials found in sewage, thereby markedly improving the treatment process.

Eliminating Air Raid Siren "Dead Spots"

611. The Federal Electric Co., Inc., 8744 So. State St., Chicago, Ill., has made careful studies and developed positive answers to prevent the hazardous "dead spots" in the air raid alarm system. The basis of the findings are contained in their bulletin No. 68 entitled "Air Raid Sirens." It gives information on how the sound is rated and distributed, and how the Federal Electric siren systems will meet requirements in your individual community.

Water Service Pipe

612. If you do not already have catalogs and literature on the new Type K Tube-Loy, together with technical information on its proper installation, you should obtain them at once. This product, manufactured by the American Smelting and Refining Co., Lead Products Division, 120 Broadway, New York, has a reputation for economical and enduring performance.

Cleaning Water Mains

613. An interesting pamphlet is available from The National Water Main Cleaning Co., 30 Church St., New York, describing the uses and economies of water-main cleaning. Added capacity to existing mains can be obtained, as well as improved pressures and lower operating expenses. This company points to the cleaning of mains as a method of improving your water supply without the use of critical material.

Street Maintenance Equipment

614. In making your plans to develop your street-maintenance program during the post-war period, Littleford Bros., Inc., 500 E. Pearl St., Cincinnati, Ohio, will give you sound assistance regarding the work that rollers, tar kettles, and spray tanks will do.

Street Lighting Globes

615. A new Smooth Surface street lighting globe has been developed by Westinghouse Electric & Mfg. Co., Edgewater Park, Cleveland, Ohio. This globe has a smooth outside surface with a rectilinear design on the inside for light diffusion. The smooth outside surface retards the collection of dirt, since there are no grooves to accumulate smoke and grease film. In addition, the new smooth surface has good optical qualities and uniform mechanical strength.

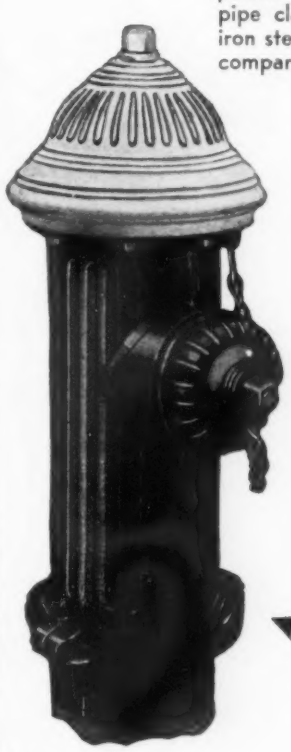
Flower Planting Guide

616. The 1943 Cole's Planting Guide has recently been issued by the Cole Nursery Co., Painesville, Ohio. This describes a wide variety of trees, shrubs and flowers useful in beautifying your streets or parks.

SMITH
HYDRANTS

PROTECTOP

Trucks and motor cars back into fire hydrants every day. When this happens to a Smith Protectop Hydrant, the break occurs at but one place and the only parts needing replacement are the frangible standpipe clamp and the frangible cast iron stem section. These parts cost comparatively little and full repairs can easily be made in 15 minutes. The valve is of the compression type and even should it be open at the time of the break, it will instantly close, preventing any possibility of flooding. Made in all sizes and types.



THE HYDRANT THAT CAN BREAK AT ONLY ONE PLACE

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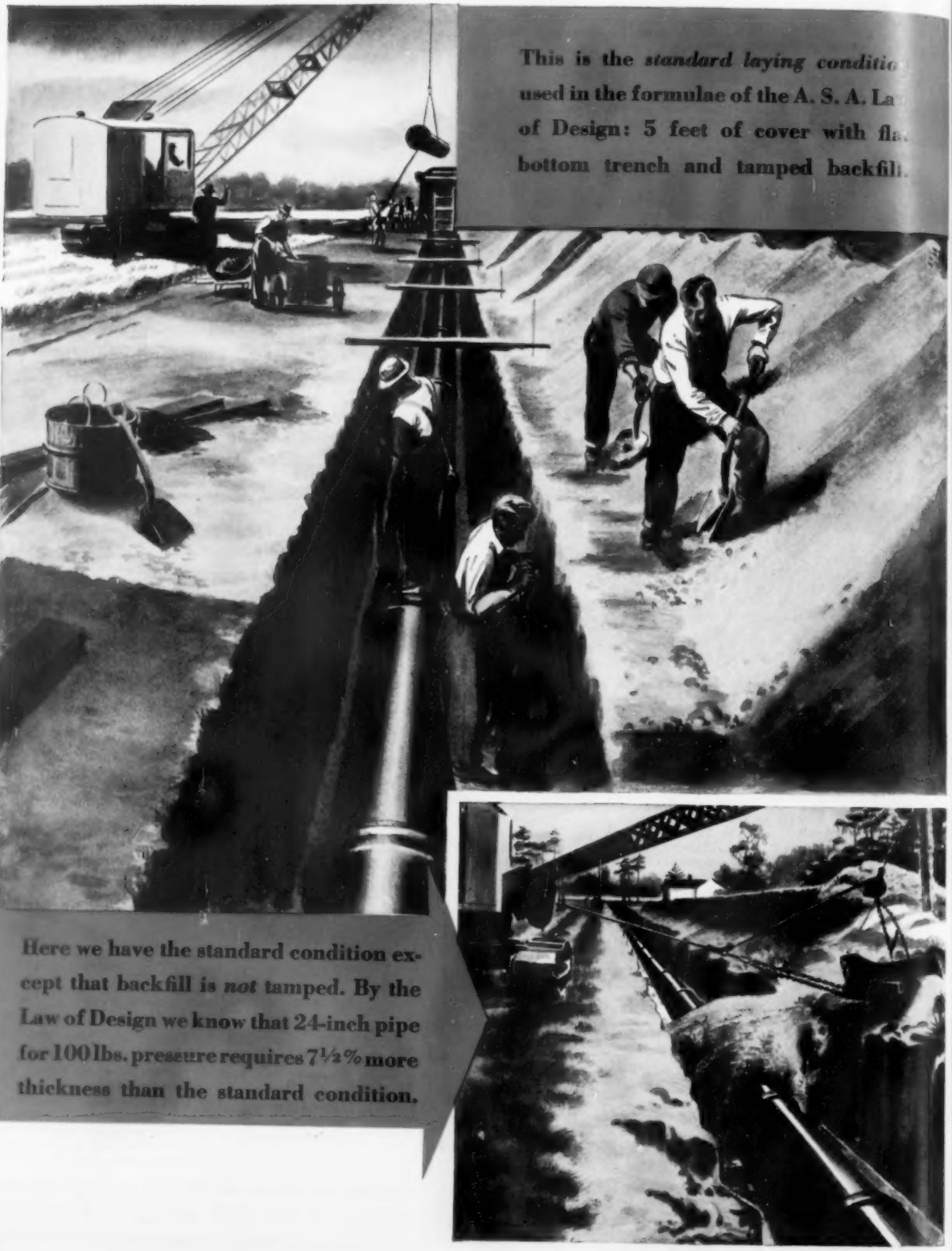
THE A. P. SMITH MFG. CO. EAST ORANGE NEW JERSEY

TAILOR MADE



This is the *standard laying conditio* used in the formulae of the A. S. A. La of Design: 5 feet of cover with fla bottom trench and tamped backfil

Here we have the standard condition except that backfill is *not* tamped. By the Law of Design we know that 24-inch pipe for 100 lbs. pressure requires 7½% more thickness than the standard condition.

How Small Cities Are Planning for Post-War Municipal Improvements

In The American City *for November and December 1942, brief statements as to post-war planning were published from 96 cities of over 50,000 population. This was followed, in the issues for January and February 1943, with similar statements from 103 cities in the 25,000-50,000 population range. Publication of replies from municipalities of from 15,000 to 25,000 population is begun in the present installment. Other replies from this population group, received too late for the current issue, will appear next month.*

The questionnaire form, identical with that sent to the larger cities, asked the following questions:

1. *Has your city begun to plan for post-war public works or other municipal improvements to be undertaken when materials and manpower are available?*
2. *If so, what are the principal types of projects contemplated in these plans?*
3. *By what departments of the city government are such plans being made?*
4. *What responsibilities and powers does your City Planning Commission have as to post-war planning?*
5. *Is your city setting aside any reserves, in war bonds or otherwise, for post-war public works?*

Municipalities which answered "No" to question number 1 are not listed. These so far number only 9, as against 38 municipalities in this population group which are here reporting post-war planning to be already under way —and with many more to follow.

The accompanying synopsis gives the answers to questions 2 to 5, with the name and title in each case of the official furnishing the information.

Albany, Ga.
C. Q. Wright, City Manager:
2. Schools; storm sewers; city hall; recreation facilities
3. City Manager's office
4. Reply left blank
5. Yes

Ansonia, Conn.
Vincent B. Clark, City Engineer:
2. Sewage-disposal plant; road building; storm and domestic sewers
3. City Engineer
4. No Planning Commission
5. No

Butler, Pa.
Philip O. Miller, City Clerk:
2. Sewer and street improvement; sewage-disposal extensions
3. Department of Streets and Safety
4. Jurisdiction within the city only
5. Yes

Cliffside Park, N. J.
Arthur H. Abrams, Borough Clerk:
2. Sewers
3. Engineering Department
4. No Planning Commission
5. No

Coffeyville, Kans.
J. D. Byers, Mayor:
2. Expansion of municipal light plant; additional water reserve supply and park and recreational facilities
3. Utilities Department and general departments
4. Being done by City Commission; consulting engineers working on plans
5. Reply left blank

Corning, N. Y.
Daniel Stimson, Mayor:
2. Sewerage system; creek channel improvement; street improvements; municipal garage, stadium; incinerator plant and disposal system
3. Board of Public Works
4. No Planning Commission
5. No

Cortland, N. Y.
Guy M. Dewey, Mayor:
2. Street, park, and city water supply improvements; storm sewers; bridge rebuilding
3. Public Works and Water Departments
4. No Planning Commission
5. No

Dunkirk, N. Y.
A. G. Walter, City Engineer:
2. Pavements, storm sewers, sanitary sewers, water mains
3. Engineering Department
4. No Planning Commission
5. Yes

Endicott, N. Y.
C. F. Hunt, Superintendent of Public Works:
2. Sewers, pavements, flood-control
3. Department of Public Works
4. Planning only
5. No

Frederick, Md.
W. R. Walter, City Engineer:
2. Water supply and distribution; sewers; street lighting, including generating facilities; street extensions and repaving
3. Engineering Dept.
4. Advisory
5. No

Gloversville, N. Y.
C. C. Thayer, Mayor:
2. Paving and construction work
3. Engineer
4. No Planning Commission
5. Yes

Hornell, N. Y.
E. H. Robinson, Superintendent of Public Works:
2. Completing WPA projects
3. Department of Public Works
4. No Planning Commission
5. No

Ithaca, N. Y.
L. H. Cass, Acting City Engineer-Superintendent of Public Works:
2. Streets, bridges, and buildings
3. City Engineer's Office
4. Advisory
5. Yes

Jackson, Tenn.
A. B. Foust, Mayor:
2. Street, water, and sewage construction; school building improvement; possibly a city-county hospital
3. City Commission as a whole
4. No Planning Commission
5. Paying off indebtedness, thus creating a credit reserve

Janesville, Wis.
Henry Traxler, City Manager:
2. Construction of fire station, schools, municipal garage, bridges, railroad overheads, highways; recreation and park program
3. Engineering Department
4. Approves plans
5. Yes, may approximate $600,000

Laurel, Miss.
J. C. Miller, Mayor:
2. Improvements to water system; elevated storage tank; paving
3. Engineering Department
4. No Planning Commission
5. Yes, reserve plan worked out

Lincoln Park, Mich.
Jasper N. Howard, Mayor:
2. Park and playground development; storm sewers
3. Engineering and Public Works Departments and Planning Commission
4. Preparing data to make recommendations to the Mayor and Council
5. No

Linden, N. J.
Myles J. McManus, Mayor:
2. Reply left blank
3. Will be undertaken by City Engineer's Department
4. No Planning Commission
5. No

Lockport, N. Y.
J. E. Niland, Commissioner of Public Works:
2. Filtration plant, enlarging water distribution system; new sewage-disposal plant and intercepting sewers; paving
3. By consulting engineers and City Engineer
4. No Planning Commission
5. No

Marquette, Mich.
LOUIS W. BIEGLER, MAYOR:
2. New sewage-disposal plant, city warehouse, fire hall; improve municipally owned electric plant
3. Public Works Department
4. Advisory to City Commission
5. Yes. All debt paid, surplus of $123,000, and expect to add $75,000 this year

Marshall, Texas
H. J. GRAESER, CITY MANAGER:
2. Sewers; fire lines
3. City Manager
4. Advisory
5. No. Contemplating a reserve fund; already have about $40,000

Middletown, N. Y.
JOHN W. MEARA, COMMISSIONER OF PUBLIC WORKS:
2. Park development; public building, sewer, and street construction; water supply and distribution improvement
3. Mayor and Department of Public Works
4. No Planning Commission
5. No

Monroe, Mich.
ARTHUR J. JENNINGS, CITY DIRECTOR:
2. Sewers, street improvements, water mains, public works garage, and city park developments
3. Engineering Department
4. No Planning Commission
5. No

Morristown, N. J.
CLYDE POTTS, MAYOR:
2. River channel improvement; repaving; sewer; completion of park improvement
3. Town Engineer's Office
4. Work is handled by Mayor and Board of Alderman
5. Yes

Mount Carmel, Pa.
HARRY W. JONES, BOROUGH ENGINEER:
2. Construction of sewers, concrete slab over creek; reconstruction of streets, curbs, sidewalks; remodel public buildings
3. Public Works, Streets, and Sewers
4. Tentative plans and costs
5. No

Natchez, Miss.
W. J. BYRNE, MAYOR:
2. Paving, sidewalks, new school, sewerage, airport
3. Mayor
4. No Planning Commisison
5. No

Norwich, Conn.
RICHARD L. NORMAN, MAYOR:
2. Rebuilding and extension of sewers, roads, and sidewalks; building filtration plant and water department headquarters; cemetery improvement; completion of recreation center
3. All departments affected
4. No Planning Commission
5. No legal provision

Ogdensburg, N. Y.
FRANCIS B. BURNS, MAYOR:
2. Building a complete sewage-disposal system
3. City Engineer
4. No Planning Commission
5. No

Peekskill, N. Y.
RALPH F. HOPKINS, MAYOR:
2. Sewage-disposal plant, sewers, fire house; bridge and street repairs; construction and repair of sidewalks, curbs, gutters, and playground improvement
3. Public Works and Planning Commission
4. Advisory
5. No—hope to get state aid for engineering cost

Pittston, Pa.
JOHN J. REILLY, MAYOR:
2. Plan not completed
3. Engineering Department and Planning Commission
4. Reply left blank
5. No

Port Chester, N. Y.
FRANCIS I. MCGRATH, VILLAGE ENGINEER:
2. New buildings, incinerator, sewers; correction of drainage and sidewalks; recreation and park development
3. Engineering Department
4. Advisory only
5. No—but plan to provide planning costs in budget

Rahway, N. J.
DAVID ARMSTRONG, MAYOR:
2. Storm drains, curbing, sidewalks, paving; extension to sewer system; new school; grandstand in park
3. City Engineer and Department of Education
4. No Planning Commission
5. No

Rock Hill, S. C.
ERWIN CAROTHERS, MAYOR:
2. Building modern incinerator, developing parks and playgrounds, paving streets, and extending water and sewer mains
3. Administrative Department
4. No Planning Commission
5. Yes

Summit, N. J.
F. MOIT, EXECUTIVE OFFICIAL:
2. Housing, street improvements, storm sewers
3. Common Council and Planning Board
4. Advisory only
5. Yes. War Bonds

Waterville, Maine
PAUL A. DUNDAS, MAYOR:
2. New fire house and school house, permanent roads
3. Public Works Department
4. Advisory
5. No legal provision

Westfield, N. J.
JOHN T. HOPKINS, TOWN ENGINEER:
2. Storm drains, paving, and park improvement
3. Engineering Department
4. Advisory
5. Reply left blank

Wilmette, Ill.
W. A. WOLFF, VILLAGE MANAGER:
2. Public buildings; water main extensions; storm sewers, etc.
3. Engineering Department
4. Commitee on post-war planning to be appointed soon
5. Yes

Winchester, Mass.
GEORGE W. FRANKLIN, EXECUTIVE CLERK:
2. Street and playground improvement; water and sewer construction; new school; addition to library; Park Department headquarters
3. All departments affected
4. Passes on all improvements
5. Yes, $100,000

TOMORROW'S TOWN

News of action now for present and post-war building is presented in a new monthly bulletin of the National Committee on the Housing Emergency, 512 Fifth Avenue, New York.

Vol. I, No. 1 of *Tomorrow's Town*, dated April 1945, contains an original "Ding" carton; a challenging editorial; a symposium on whether England's "Uthwatt Report" on a proposed land program is adaptable to the rebuilding of American cities; and several news items on wartime housing activities and studies.

Priorities Developments for Municipalities

THE new Controlled Materials Plan Regulation 5-A, issued March 19, is a formal recognition of the importance of essential municipal services, and places these services on the same footing as war industries. Maintenance, repairs, and operation supplies needed for such services may be obtained under the new regulations.

Regulation 5-A limits the material to 100 per cent of that used during the previous calendar year, and automatically grants ratings of AA-1 or AA-2x, or the equivalent, to various municipal services without the need for applying to Washington.

The new regulation 5-A is particularly well adapted to use by central municipal purchasing commissions who operated at a disadvantage under previous arrangements.

The municipal services affected by these new regulations are as follows:

SCHEDULE I

Preference Rating AA-1

Sewers—sanitary and sewage disposal
Hospitals
Refuse collection and disposal
Communicable disease control
Public transportation facilities
Docks, wharves, and terminals
Police and law enforcement agencies
Fire protection
Beacons, markers, and radio devices employed as aids to navigation

SCHEDULE II

Preference Rating AA-2X

Streets and highways providing immediate access to military or war production facilities, and the strategic network and its extensions into and through municipalities
Federal aid system of highways
Primary state highways, together with their extensions into and through municipalities, and arterial streets and highways
Airports and flight strips
Dams, levees, and revetments
Canals—waterways
Flood control facilities
Storm sewers
Public dispensaries, clinics, and health stations, governmentally owner or operated not for profit

St. Paul Likes Soft Water

Customers in Minnesota's Capital City Get Over a 20-Year Prejudice

By L. N. Thompson
General Superintendent
St. Paul Water Department

YOU don't have to fill out a coupon to get it. Neither do you have to clip a box top or write a letter, but the St. Paul Water Department is giving to each consumer of water (300,000 of them) a free premium worth a dollar a year. This saving accumulates automatically through decreased costs of soap and water softeners.

All this started January 6, 1940, when the City Water Department put into operation its new softening plant. This improvement resulted because increased consumption over several years had indicated the desirability of increased filtering, mixing, and coagulation capacities of the original plant built in 1921. Low interest rates and the opportunity to obtain a 45 per cent PWA contribution from the Federal Government prompted the Board of Water Commissioners to approve the engineer's recommendation for an enlargement of the plant, and in 1936 a bond issue was approved, plans made, and work started.

Softening water with soap, housewives find, is not only expensive but objectionable. Soapy hard water forms a curd, a troublesome and objectionable form of dirt. Curds adhere to clothes even after rinsing, leaving that "tattle-tale gray" after ironing. There is another happy angle to soft water, mental rather than economic. Its velvety feel, say the psychologists, is conducive to relaxation. And decreased use of soap makes for better dispositions.

Engineers in our department have calculated that one-half of a cent's worth of softener used in the city's softener plant will do the work of 20 pounds of soap at the faucet end of the line. Saying it another way, 1,200,000 gallons of water are used daily with soap. With hard water the consumer cost of soaps, shampoos, and softeners necessary for that "comfortable feeling" would run about $300,000 a year.

First Effort Backfired

About 20 years ago the Water Department, without any advance notice, began to soften the water. This proved to be a sad experience. The plant was not properly designed as a softening plant, facilities were poor, and recarbonation was not possible. Results were far from satisfactory, and a wave of public criticism soon forced abandonment of the experiment.

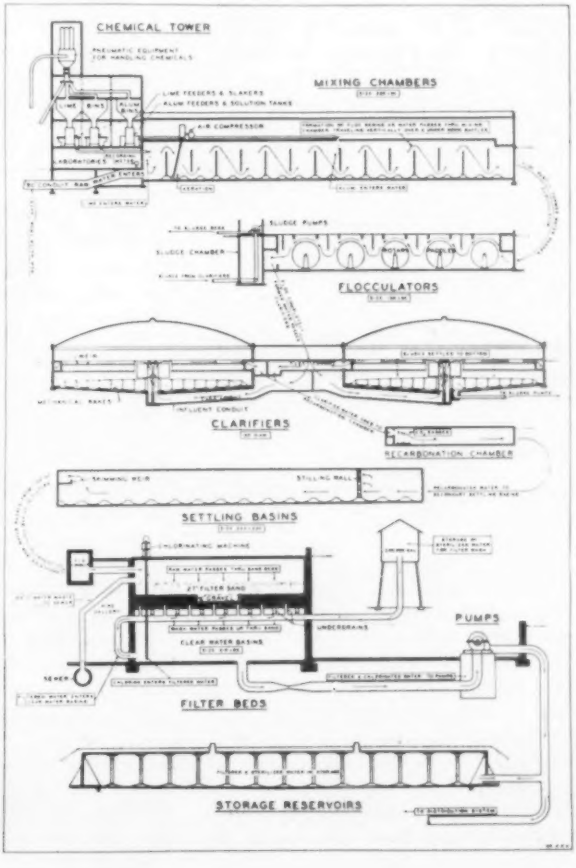
This had its influence on the 1936 improvement. The designers, unduly wary, left softening out of the picture. However, they did not shut it out entirely and designed the work so that its conversion to a softening plant could be made at a future date, if and when desirable.

We had not appreciated, however, how much public opinion had changed over the 20-year interval. With no attempted publicity on our part, and much to our surprise, the simple publication of such a plan created so much public interest that we converted the project to a softening plant almost immediately.

St. Paul procures approximately 90 per cent of its water supply from the Mississippi River, some twenty miles upstream from the city. The other 10 per cent is obtained from the watershed of a chain of lakes. Water pumped from the river is pumped against a 110-foot head through approximately eight miles of 60-inch supply conduit to the head lake, thence through a chain of three lakes with a total storage of about seven billion gallons and, finally, through 4½ miles of 90-inch conduit to the softening plant just north of the city.

The per capita consumption of city water in St. Paul is very low, about 75 gallons per day. It is estimated that about 17,000,000 gallons per day are supplied from private wells, mostly for industrial purposes. Total consumption supplied by the department varies from 25 to 65 mgd.

The original filter plant was designed on the basis of 125 mg per acre per day, peak daily loads raising this



A diagramatic sketch showing the course of water during the purification and softening process in St. Paul.

to 178 mg. The total available capacity having been reached, a shortage of both mixing and coagulation time at the high rate prompted plans for enlargement of filtering units.

The design of the new plant had to conform to the existing head-losses and hydraulic gradient through the old plant, as well as to provide for continuous operation with a maximum shutdown not to exceed 20 hours.

Existing structures consisted of two baffled mixing chambers, two settling basins, twelve filters, alum storage bins, and head-house. All chemicals were handled by hand or manually in carts.

The additions were a flocculator, two Dorr clarifiers, six filters, lime storage, Infilco chemical feed machines, Everson chlorine facilities, and a new head-house. In the redesigned plant, the two mixing chambers (14.5 x 220 x 20 feet deep) are now operated in series, but as average demands increase they will finally be operated in parallel to conserve loss of head.

Chemical Treatment

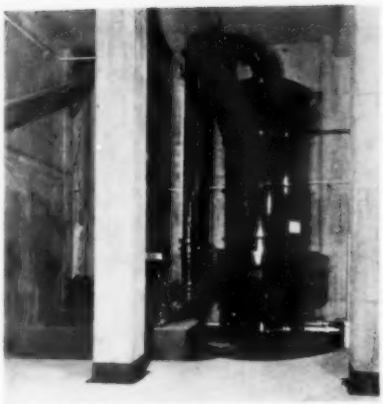
Lime, first, and then alum are introduced into the mixing chambers after aeration, the water passing thence to the 80 x 160 x 20-foot deep flocculator building which contains five unit sets of paddles set at right angles to the flow. The flocculator paddles are each independently driven by electric motors and may be operated at any one of three speeds. The two clarifiers set at the end and one on each side of the flocculator building are 150 feet in diameter by 24 feet deep at the center.

Water, entering through 6 x 7-foot conduits to the center, flows radially to the outside and over a circumferential adjustable steel weir to the collector conduits. Sludge from the clarifiers is collected by Dorr equipment and pumped through 2,000 feet of dual 8-inch pipe lines to the sludge fields. Water from the clarifiers passes through a recarbonation chamber 160 x 20 x 20 feet deep, built parallel to the flocculator room, and into the old coagulation basin, now used as secondary settling basins. Water from the secondary settling basins passes directly to the filters.

New Filters

Six new filters were constructed with two additional clear water basins. This gives a total of 18 filters. However, as but three of the new filters are completely equipped mechanically, the present capacity of the plant is but 75 mgd, with ultimate capacity set at 90 mgd.

Filter design consists of three-inch cast-iron laterals laid directly on the floor of the bed. The main filter collectors from the three-inch laterals are 28- x 36-inch rectangular concrete boxes or conduits built under the filter floor, so designed as to serve as structural members.



This CO_2 gas scrubber was made according to the St. Paul water department's own design.

The laterals have 7/16-inch holes on the lower quarter and are connected to the concrete collectors by 42 small cast-iron tees cast into the filter box floor, on 18-inch centers. Precast concrete Wagner blocks are laid over the entire filter bottom and between the laterals. Over these are placed 23 inches of gravel and 25 inches of filter sand. The wash-water gutters are of steel with planed edges.

A new brick and steel storage building provides several months' storage of lime, and a four-story chemical head-house contains all new Brady mechanical machinery for pneumatic equipment, gas scrubbers, compressors, lime slakers, and alum solution equipment. Both manual and automatic controls are provided for chemical feeds.

Since the main pumping station is built and housed in the same structure with the softening plant, two 250-horsepower and one 400-horsepower steam boilers provide sufficient stack gases for the recovery of CO_2 gas used in the recarbonation of the water.

The scrubber, of our own design, consists of a steel shell, 4½ x 13 feet high, filled with gravel and limestone. The gases pass upward through the scrubber against a water spray. Some little trouble was originally encountered with fly ash being pulled into the scrubber, but the installation of a cyclone dust remover has overcome this. Provision is made for by-passing the scrubber entirely, and experiments indicate that this may be done. No driers are used. The gases tested at the compressor contain 10 per cent carbon dioxide and are introduced into the water through a perforated cast-iron pipe grid laid on the floor of the recarbonation chamber.

A Beckman pH indicator, Bristol model 440M recording and controlling pH meter, with electrically-operated butterfly valve, controls and records the pH of the water through the regulation of the flow of the CO_2 gas.

Unusual Dome Roofs

Design and construction of the filter boxes was somewhat different than usual in that all boxes are built as a unit, with common division walls, the floor of the boxes being the roof of the clear wells below, and the outside walls being also the outside building walls. In the original plant each box was constructed as a single unit independent of the building. Considerable care was used in both design and construction in the use of reinforcing steel to avoid temperature cracks, and in the location and treatment of construction joints.

The unsupported dome roofs on the clarifier buildings, 150 feet in diameter, are said to be the largest of this type ever built. A low unit of compressive stress under dead load of 150 pounds per square inch is claimed of these domes. A negligible amount of steel reinforcing is included in the 5-inch-thick roofs which are held from spreading by twenty-one 1½-inch steel bands in a concrete ring around the periphery of the tank at the base of the roof. The roof was built according to the prestressed design.

Cost of filtration and softening is $13.91 per million gallons. The annual cost for softening alone approximates $50,000, giving to the consumers a saving estimated at $300,000 a year. Although in the three years of operation we have had innumerable minor problems, at no time have we had to shut down the plant. Disturbances in the quality of the water, which occurred twice, were probably caused by our own inexperience and were of short duration. At one time a financial difficulty prevented the purchase of lime and threatened consequent stoppage of water softening. However, the situation soon cleared and made all parties concerned realize the popularity with the consumers of a softened water.

All designs were made by Water Department engineers. Ellms & Levi of Cleveland, consulting engineers, reviewed the design. The Water Department is operated under the direction of the Board of Water Commissioners. Wm. A. Parranto, Commissioner of Public Utilities, is president of the Board, with Milton Rosen, Commissioner of Public Works, and John Findlan, Commissioner of Finance, the other two members.

Small City Gives Accounting Control to Comptroller

By LIVINGSTON PLATT
Mayor of Rye, N. Y.

THE year-old city of Rye, N. Y., on the Boston Post Road, was founded in 1660. The city hall was once The Widow Haviland Inn at which Generals Washington and Lafayette actually stopped and Washington's diary calls it a "very decent inn." As a village from 1904 to 1942, Rye collected village taxes. But as a chartered city since January 1, 1942, Rye must collect city, county, and state taxes in June and February, and school taxes in September.

As a village, the assessment roll was handwritten, tax bills were typed, handwritten receipts acknowledged payments of taxes, department heads issued purchase orders with no centralized control, and expenditures were charged to budget appropriations once a month.

As a city, though our population of 9,900 was the same when a village, the tax roll and bills for 4,000 parcels are printed by Addressograph and extended by Burroughs tax-computing machine; tax payments are posted by the machine on tax ledger cards at the same time as the payments are entered on the cash receipts record.

After the assessment roll, showing name, lot, block and assessed valuation, has been prepared by Addressograph plates, and taxes have been levied by the Council, the roll is extended and bills computed by the Burroughs accounting machine in the Comptroller's office. The machine picks up the valuation and multiplies it by the county sewer rate and then by the real estate rate, adds these two taxes, divides the total by two for a six months' installment, and prints the installment on the assessment roll, tax-ledger card, and tax bill in the same single operation. In September the same routine is performed for school taxes.

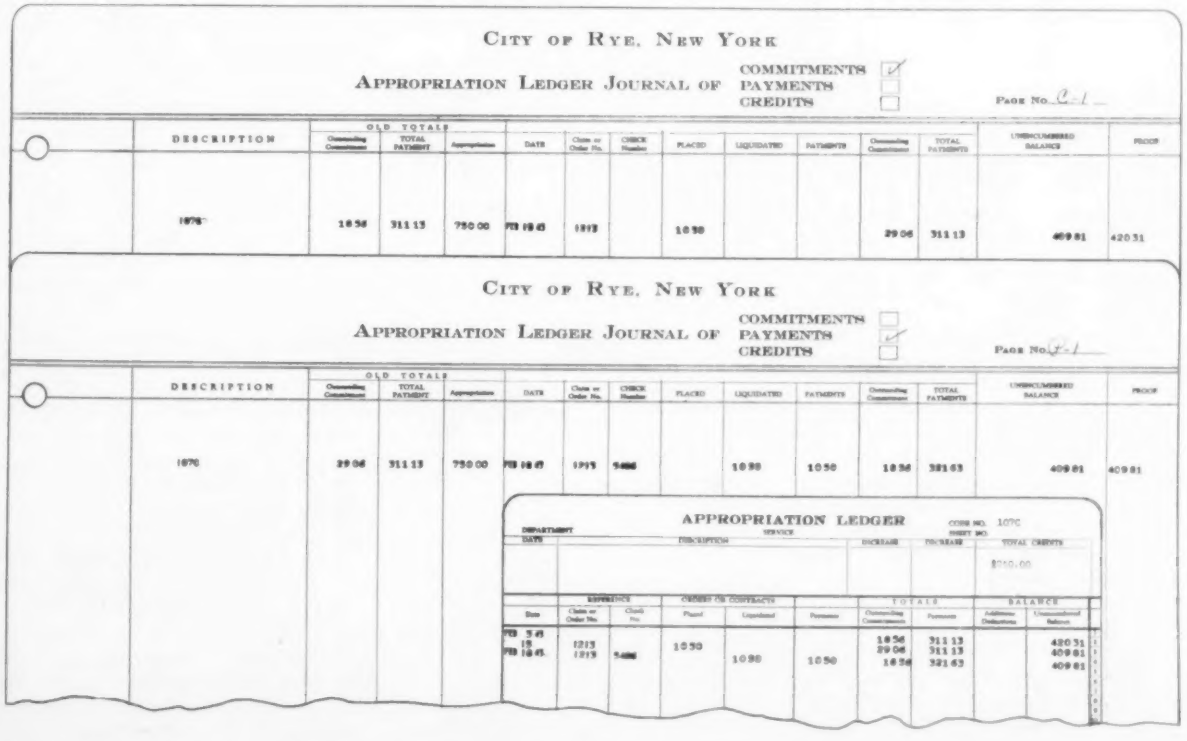
When a tax is paid, the machine types the amount of the payment on the cash sheet. The old balance is picked up from the individual taxpayer's ledger card, which is now inserted in the machine, and the payment is printed on the card and sheet together with date, receipt number, new balance, and a proof of accuracy. In the absence of a Burroughs receipting machine, at present the day's paid bills are taken from the spindle and totaled by adding machine as a check of the postings or day's receipts.

The tax roll is extended and the 4,000 bills computed and written in 2½ weeks, against 6 weeks formerly.

The Comptroller's office now acts as the purchasing department, receiving and checking all requisitions, writing the purchase orders, and honoring the claims—all by machine and in a quarter the time formerly consumed.

When the order is placed, the amount is charged to the budget account on the appropriation ledger and journal, and the balances are reduced accordingly by the accounting machine in one operation.

When the goods are delivered and the claim rendered, the claim is first approved by the head of the using department; then it goes to the Comptroller, to be submitted to the Council for final approval. The claim then goes to the machine operator who writes the check and at the same time enters the record on the Claim and Check Register, also simultaneously preparing the Warrant Sheet. The


CITY OF RYE, NEW YORK

APPROPRIATION LEDGER JOURNAL OF — COMMITMENTS ☑ PAYMENTS ☐ CREDITS ☐ — PAGE NO. C-1

DESCRIPTION	OLD TOTALS: Outstanding Commitment	OLD TOTALS: Total Payment	OLD TOTALS: Appropriation	DATE	Claim or Order No.	CHECK Number	PLACED	LIQUIDATED	PAYMENTS	Outstanding Commitment	TOTAL PAYMENTS	UNENCUMBERED BALANCE	PROOF
1870	1056	311 13	750 00	FEB 10 45	1213		1050			29 06	311 13	409 81	420 31

CITY OF RYE, NEW YORK

APPROPRIATION LEDGER JOURNAL OF — COMMITMENTS ☐ PAYMENTS ☑ CREDITS ☐ — PAGE NO. C-1

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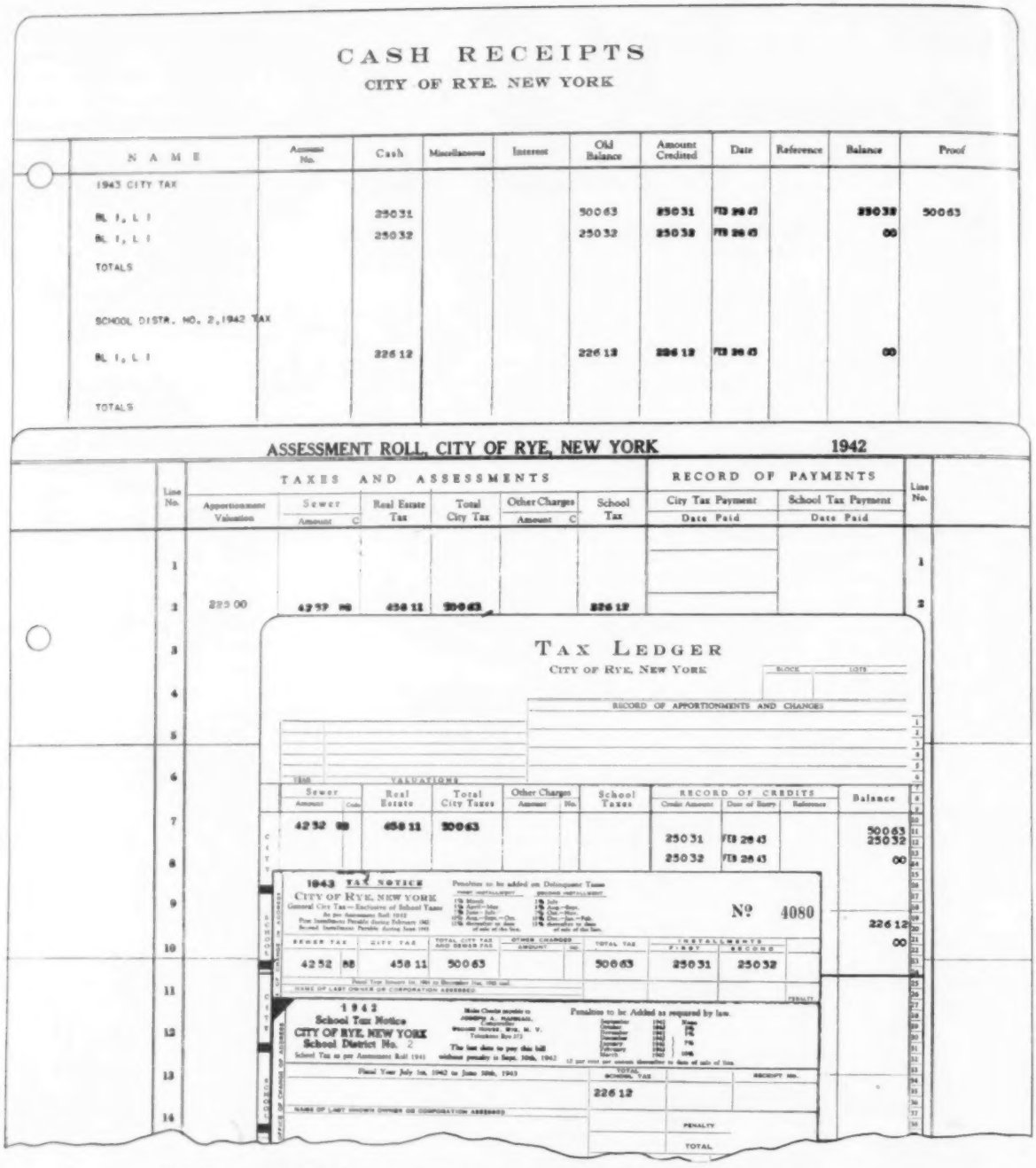
1870	29 06	311 13	750 00	FEB 10 45	1213	5486		1050	1050	1056	321 63	409 81	409 81

APPROPRIATION LEDGER — DEPARTMENT — SERVICE — CODE NO. 1070 — SHEET NO. — DATE — DESCRIPTION — INCREASE — DECREASE — TOTAL CREDITS $750.00

REFERENCE: Date	Claim or Order No.	Check No.	ORDERED OR CONTRACTS: Placed	Liquidated	Payments	TOTALS: Outstanding Commitments	TOTALS: Payments	BALANCE: Additions or Deductions	BALANCE: Unencumbered Balance
FEB 5 45						1056	311 13		420 31
19						29 06	311 13		409 81
FEB 10 45	1213	5486	1050	1050	1050	1056	321 63		409 81
	1213								



CASH RECEIPTS

CITY OF RYE, NEW YORK

NAME	Account No.	Cash	Miscellaneous	Interest	Old Balance	Amount Credited	Date	Reference	Balance	Proof
1943 CITY TAX										
BL 1, L 1		250 31			500 63	250 31	FEB 28 43		250 32	500 63
BL 1, L 1		250 32			250 32	250 32	FEB 28 43		00	
TOTALS										
SCHOOL DISTR. NO. 2, 1942 TAX										
BL 1, L 1		226 12			226 12	226 12	FEB 28 43		00	
TOTALS										

ASSESSMENT ROLL, CITY OF RYE, NEW YORK 1942

Line No.	TAXES AND ASSESSMENTS: Apportionment Valuation	Sewer Amount	C	Real Estate Tax	Total City Tax	Other Charges Amount	C	School Tax	RECORD OF PAYMENTS: City Tax Payment Date Paid	School Tax Payment Date Paid	Line No.
1											1
2	225 00	42 52	RB	458 11	500 63			226 12			2
3											3
4											4
5											5
6											6
7											7
8											8
9											9
10											10
11											11
12											12
13											13
14											14

TAX LEDGER

CITY OF RYE, NEW YORK

BLOCK LOTS

RECORD OF APPORTIONMENTS AND CHANGES

Year	Sewer Amount	Code	Real Estate	Total City Taxes	Other Charges Amount	No.	School Taxes	RECORD OF CREDITS: Credit Amount	Date of Entry	Reference	Balance
	42 52	RB	458 11	500 63				250 31	FEB 28 43		500 63
								250 32	FEB 28 43		250 32
											00

1943 TAX NOTICE

CITY OF RYE, NEW YORK

General City Tax—Exclusive of School Taxes

Penalties to be added on Delinquent Taxes

No. 4080

SEWER TAX	CITY TAX	TOTAL CITY TAX AND SEWER TAX	OTHER CHARGES AMOUNT	OTHER CHARGES CODE	TOTAL TAX	INSTALLMENTS FIRST	INSTALLMENTS SECOND	PENALTY
42 52 RB	458 11	500 63			500 63	250 31	250 32	

1942 School Tax Notice

CITY OF RYE, NEW YORK

School District No. 2

Penalties to be Added as required by law.

Fiscal Year July 1st, 1942 to June 30th, 1943	TOTAL SCHOOL TAX	RECEIPT NO.
NAME OF LAST KNOWN OWNER OR CORPORATION ASSESSED	226 12	
		PENALTY
		TOTAL

Top form is record of daily tax payments; below it shows how writing the bill also writes taxpayer's ledger card and assessment roll at same time.

warrant, required by the city charter, must be signed by Mayor and City Clerk before the check is sent to the vendor. It is then filed with the original claims and cancelled checks for the convenience of the outside auditor.

Under the old method of purchasing used until January 1, 1942, the department heads wrote their own purchase orders and approved the claims, whereupon the Comptroller paid them. The Comptroller entered the payment into a claim register, wrote the check, entered the check in the disbursements book, and finally typed the warrant for the approval of the Mayor and City Clerk. The machine combines these four operations into one.

Payroll Deductions Stated

The Victory Tax, adding one more to the half dozen existing payroll deductions, was the factor that decided the Comptroller to install a separate payroll account. The Public Works Department puts in a weekly payroll for its 30 sanitation and highway employees; all the other 60 city employees, including the police, are paid semi-monthly.

A special payroll account was set up, and the total amount of any one payroll is issued in one check deposited in the bank in the payroll account. The individual pay checks are written by inserting in the accounting machine the large payroll record sheet and the employees record of earnings card with the check placed between the two records. The numerous deductions are recorded on all these records together

with a detachable stub on the employees check. After the deductions have been recorded, the check is moved to the proper position for writing the face of the check and the payroll record. One advantage of this system is that every employee now knows exactly what has been deducted from each pay check he receives.

Accounting Up to Date

This modern system of general accounting is the principal mechanical revision of municipal operation following the change from village to city government. The city charter, prepared by a committee of citizens, provides that the six city Councilmen and the Mayor shall serve without compensation, as did the former Board of Trustees and Mayor. Otherwise it follows the pattern of village operations. Conditions are little changed except in the Finance Department. The improvement here includes accuracy in setting up tax accounts, paying claims, issuing payroll checks, and in a closer control of budget operations. There is now a clear and legible account of all operations by which the standing of any account can be ascertained as of date.

On this page are the forms for handling payments of bills and of salaries, which together with the appropriation and tax accounting forms on the preceding two pages constitute the up-to-date mechanized accounting documents of the little old city of Rye, N. Y.

COMPTROLLER OF THE CITY OF RYE
WESTCHESTER COUNTY, NEW YORK

Pay to the order of the Persons or Corporations named in Column No. 5, the amounts shown opposite their names in Column No. 6, as allowed by the Council of the CITY OF RYE and charge the same to the accounts shown in Column No. 7

Claim 1	Date 2	Memo 3	Number 4	Name 5	Amount 6	Account 7	
1030	FEB 43	1213	5406	JOHN L. DOE	1050	1070	ANY BANK

CLAIM AND CHECK REGISTER
CITY OF RYE, NEW YORK

	SINKING FUND	CAPITAL	TRUST	CURRENT (OTHER CHARGES)	CURRENT (APPROPRIATION)	DEDUCTION AMOUNT	NET CLAIM	DATE	ACCOUNT (ORDER NO.)	ACCOUNT (CLAIM NO.)	WARRANT OR CHECK No.	NAME	AMOUNT	ACCOUNT	BANK
					1050		1050	FEB 43	1213	5406	5406	JOHN L. DOE	1050	1070	ANY BANK

CITY OF RYE
WESTCHESTER COUNTY
NEW YORK

DATE	ORDER NO.	CLAIM NO.	WARRANT OR CHECK NO.	PAY TO THE ORDER OF	DOLLARS	CTS.
FEB 43	1213	5406	5406	JOHN L. DOE	1050	

THE RYE NATIONAL BANK
RYE, N. Y.

CITY OF RYE, N. Y.
COMPTROLLER

ABOVE
Shows how Rye pays bills and keeps record.

CITY OF RYE, N. Y.

DEPARTMENT OF
PAYROLL FOR THE ENDING 194

CHARGE TO ACCOUNTS AS FOLLOWS

Title	Code No.	Amount

No. of Women	Name	Title of Position	Sun.	Mon.	Tues.	Wed.	Thurs.	Fri.	Sat.	Total Days Work	Total Days Sick	Total Hours	Rate	DEDUCTIONS Hospital	DEDUCTIONS Benefit	DEDUCTIONS Others	Amount Paid Employee	Account Charged

BELOW
Are forms of payroll plan.

CITY OF RYE, N. Y.
PAY ROLL RECORD

CHECK NUMBER	RECORD OF CHECKS DRAWN Date	Amount	Warrant No.	Name	CHECK AMOUNT	DEDUCTIONS Date	Retirement	Hosp.	Income Tax	War Bond and Maint.	Other	TOTAL DEDUCTIONS	GROSS AMOUNT	NET PAY	REMARKS

CITY OF RYE
Westchester County
NEW YORK
PAY ROLL CHECK

CHECK NO.	DATE	ACCOUNT	WARRANT NO.	PAY TO THE ORDER OF	DOLLARS	CTS.

THE RYE NATIONAL BANK
RYE, N. Y.

CITY OF RYE, N. Y.
COMPTROLLER

EMPLOYEE'S RECORD OF EARNINGS

NAME AND STATUS OF EMPLOYEE

DATE	RECORD OF DEDUCTIONS Retirement	Hospital	Fed. Inc. Tax	War Bd. Misc.	Other	TOTAL DEDUCTIONS	GROSS PAY	NET PAY

CITY OF RYE, N. Y.

Asphalt-less Street Repairs

Syracuse, N. Y., Uses Weatherproof Natural Cement Blend to Repair Streets in Rail-Removal Work

LAST year Nelson F. Pitts, City Engineer, of Syracuse, N. Y., prepared a thorough program of pavement reconstruction for streets deteriorated by age and wear. Most of these streets, incidentally, contained abandoned trolley tracks that made the surface rough and created a danger to traffic.

However, this program suffered a fate similar to many others because of the war. In the early spring, the government restricted the use of asphalt, reinforcing steel, and other necessary pavement materials and practically forced Syracuse to put this well-prepared program on the shelf for the duration.

About that time, a government agency that wanted those rails, and wanted them badly, appeared on the scene. The rails could be used in the vital scrap-collection program, as well as in equally important rail-transportation work. Consequently Engineer Pitts' program was hauled off the shelf, revised to include only the rail-removal work, and put into operation.

To help make these repairs, the War Production Board authorized the use of a limited amount of asphalt, but specified that no reinforcing should be used. In return, the Board demanded the privilege of stipulating where the old rails were to be shipped.

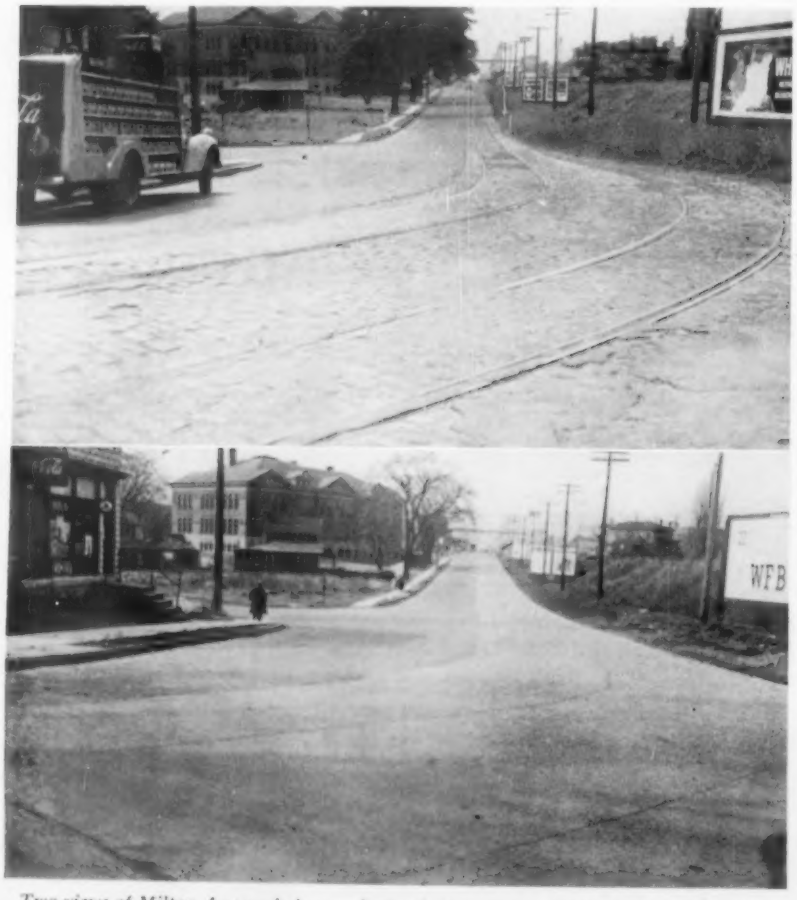
Redesigned Pavement

Mr. Pitts and his staff soon learned that the mere release of the asphalt by WPB did not guarantee its arrival. The old law of supply and demand, with the war doing the demanding, sidetracked the tank cars for other uses, and it appeared that the work had hit another snag. Rather than wait hopefully and delay the work, and realizing how badly the cars were needed to ship fuel oil and other products desperately needed for war production, Mr. Pitts redesigned the slab eliminating the asphalt.

The original design consisted of a concrete base mixed to the proportions of 1:2½:5, averaging about five inches in depth and having a three-inch asphalt wearing surface. In working out his revisions, Mr. Pitts increased the depth of the concrete by one inch. For the wearing surface, he called for an additional layer of concrete two inches in depth, mixed in the proportions of one part cement to two parts sand and two parts fine stone. In each batch of concrete, one bag of natural cement was substituted for a bag of portland cement in order to make the surface weatherproof.

The concrete was proportioned at the batching plant and mixed at the site of the work, thus eliminating much of the dust and confusion resulting if the mix were proportioned on the street. Every third batch that left the plant contained top course mix, with the remaining two for the base course. The base mix, 1:2½:5, yielded about 1.10 cubic yards of concrete for a 5-bag batch, of which one bag was Rosedale natural cement. The top course gave a yield of about 1.20 cubic yards for a 9-bag batch, of which one bag was this same natural cement. The water cement ratio was kept as near as possible to six gallons per bag.

In laying the pavement, the crew would place two batches of base mixture and give it a rough finish to about one inch below grade. The top course was then laid and finished by hand before the base had an opportunity to set. Mr. Pitts states that this is the first time that he has used a natural cement mix for a surface course; he had used it in the base course previously with excellent results.



Two views of Milton Avenue before and after improvement. This is one of the streets using the natural cement blend for a wearing surface instead of the asphalt mixture. Expansion joints and longitudinal contraction joints are plainly visible.

18 Streets Affected

Work was performed on 18 separate streets having a total length of 8.5 miles. Of this, asphalt surfacing was used on 25,000 square yards, and concrete wearing surface was used on the balance, 69,000 square yards. Five of the streets were in heavily traveled areas and consituted a large percentage of the area improved. One of these, North Salina Street, was widened and

repaved to a 70-foot width about 15 years previously. At that time the pavement in the railway area was not renewed and in the course of time had become rough and dangerous. Although the rails had been laid in 1908, they were in good condition and were requisitioned by the army engineers for relaying in a Pennsylvania ordnance depot. It was during the construction of this street that shipments of asphalt came to a stop.

Removes Rough Sections

The section in South Avenue was the largest to be improved, being 1.48 miles in length. There were over 31,000 lineal feet of rails removed from this section alone. South Avenue is an important artery leading into the city from the southwest. The strip of pavement containing the rails was in poor condition. Part of it had not been improved since 1919. This is one of the streets on which the center was laid with concrete, the track area being built in two sections with a construction joint in the center. Lateral expansion joints were placed every 95 feet on each side.

The section in Milton Avenue also was resurfaced with the natural cement blend concrete. This street originally was paved with brick for the vehicular traffic and with sandstone block in the railway area. This, incidentally, had become very rough. The repairs make a great improvement in the street and aid in carrying a large volume of traffic. The project was 1.19 miles long and yielded 289 gross tons of rails.

The project was set up originally under WPA. However, wartime activities made it impossible for this organization to furnish labor. The city was fortunate in having skilled help on its own payroll able to perform the work.

Traffic Capacity Increased

Court Street is another heavily traveled artery. It carries a large part of the traffic to and from the army airbase and the new General Electric plant. The removal of the rails and the repavement of the track area greatly increased the traffic capacity of the street. There were 140 gross tons of rails removed here.

The actual removal work was begun as a WPA project, with the government supplying part of the materials and the labor and the city supplying the balance. As the paving season progressed, the WPA labor force was so badly depleted by men going into war work and the armed services that the city was obliged to furnish a large part of the manpower. The city was fortunate in having men on its staff skilled in handling rails. These men were able to do the work with a minimum of damage, keeping the rails in a usable condition. About 10,000 lineal feet were suitable for relaying and were used in ordnance depots for this purpose. City Engineer Pitts estimates that a total of 2,600 tons of rails and scrap were salvaged.

Mayors and Chairmen as Clarifiers

A WARTIME service urgently needed from the presiding officers of deliberative bodies is emphasized by Harold D. Lasswell in his book, "Democracy Through Public Opinion."* It is to function as a "clarifier," rather than an extreme partisan, in discussions of debatable problems.

"Democracy depends on talk," says Dr. Lasswell. But he points out that if the methods of talk do not aid in the discovery of sound public policy and create a sense of achievement, there is contempt for talk. "Talk in public ceases to be a quest for sound public policy and disintegrates into a fight; or in eagerness to maintain the emotional equanimity of the discussion, views and opinions are given friendly but unclarified hospitality." And the author continues:

"Perhaps we can clarify public discussion by adopting a new pattern. If so, we need to provide for a new function. Someone should be charged with the responsibility of clarfying what is said. The job of the clarifier would be to make words make sense.

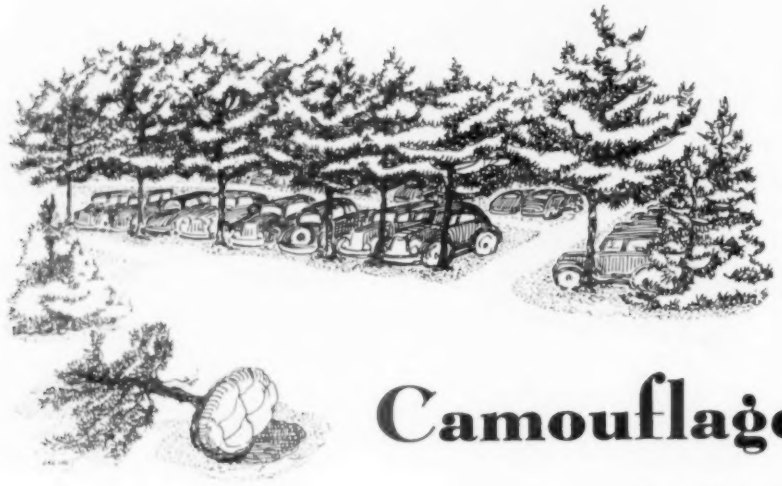
"How would the clarifier work? He would ask questions of each contributor to the discussion. Suppose that Mr. A has spoken for five minutes in favor of more taxes on the lesser income groups. Mr. B has spoken against the proposal. The clarifier would try to disclose to the audience just how A and B view the results of what they propose. Mr. A, let us assume, says that everybody will feel more responsible if he pays taxes. Mr. B retorts that in fact the people with the lowest incomes pay the most taxes, but Mr. A does not think they are responsible. The clarifier would have to find out what is meant by 'paying taxes' and by 'responsibility.' Both men may agree that the lower income groups pay the most taxes. Mr. A may want to be understood as saying that the 'irresponsibility' of the poorer people comes from the invisibility of the burden that bears on them. He may predict that the lower income groups will become more active for efficiency in government, and against more expenditures for relief, if they understand that they bear much of the community load. The clarifier can find out if Mr. B agrees with this picture of the probable outcome of direct taxes on the low income groups. And so on.

"The clarifier will not take sides. He will not express personal preferences. He will perform a strictly technical function. He will ask the questions that every member of the audience would ask if he were able to think of them promptly and ask them consecutively. Before audience participation, the situation will be clarified to a point where relevant contributions can be distinctly recognized. . . .

"The idea of the clarifier can be extended to all occasions where there is collective discussion, public or not. Every committee meeting can make use of the clarifier. Meetings of boards of directors, boards of trustees, cabinets, commissions, administrative councils, executive committees, advisory boards, conciliation committees; all depend for their successful issue upon the skillful use of the mind. They rely upon discussion, and their processes can be improved by a specialist who performs the clarifying function."

To public officials and civic leaders who wish to serve thus as "clarifiers," THE AMERICAN CITY urges a careful reading of Dr. Lasswell's book.

* Published 1941, by George Banta Publishing Co., 52 Vanderbilt Avenue, New York. $1.50.



Whether Bombs Fall or Not, Intelligent Tree Planting for Camouflage Will Produce Permanent Community Assets

Camouflage Planting

By MARJORIE SEWELL
Landscape Architect
New Hope, Pa.

UNLESS we Americans adopt the woodchuck's habits of complete concealment underground, our camouflage problems will be chiefly those of screening and distorting the characteristic shapes of important industrial buildings, road intersections, large parking spaces, new cuts and fills, or earth scars made by trucking during construction of new plants for war industries. This involves a study of the surrounding landscape, its characteristic contours and plant growth as seen from a bird's eye point of view, so that the target can be made to merge into its surroundings and thus appear as inconspicuous and unimportant as possible.

Various materials have been developed recently for use as foliage screens, but since our targets need protection not only from the bombardier's direct observation, but from aerial photographs as well, and since the infra red film used by military photographers shows up clearly a great deal more than is visible to the human eye and makes artificial nets and foliage appear very different from real plant growth, the best possible effects can be produced only by transplanting real trees, shrubs, and vines to screen the target.

A Cooperative Task for Architects and Landscape Architects

The process is a complicated one and, like city planning, the design and installation of good camouflage requires the honest cooperation of many different professions to cover all aspects of day and night protection. Perhaps of all professions, that of landscape architecture gives the best basic training, for the landscape architect is trained to understand topographical surveys, to plan cut and fill in the grading of banks, and to fit roads into the natural slopes of the land so that they will not stand out as straight arrows to guide enemy airplanes. He also learns to work at various scales when drafting and designing, so that he naturally studies effects of mass and open spaces and the kinds of shadows cast by different objects, as if he were looking down from different altitudes.

A reducing glass and a knowledge of descriptive geometry are as invaluable as a good set of airplane photographs. Both architects and landscape architects are trained to visualize the possibilities of a problem and the effects produced by colors, values, textures, sunlight, and shadows; but the landscape man also understands the types of plant materials that can be used to produce certain effects, and the kinds of trees that will grow best under certain conditions of climate or soil. So the time to call him in for consultation is when the site is being selected for a war industry and while the building is being designed, in order that he may advise how it can best be made to fit into the existing contours of the land. The problem is not a flat picture problem, but one of depths and heights in three dimensions, for military photographers are already using stereoscopic cameras that exaggerate form and shape.

And to these existing conditions must be added another element—motion. Any moving object casts moving shadows at various rates of speed and immediately attracts the attention of aerial observers. The steady stream of cars along a road, and their concentration in orderly rows outside a factory building are tell-tale evidence to the enemy that something of importance is going on inside that building. Parking spaces indicate the number of war workers employed in a factory just as surely as do the size and shape of the building. Thus parking spaces have become as important a target as the industrial plants themselves, and the earth scars made by trucking are also a give-away to any school boy.

Screening Roads and Parking Spaces

Europeans have the advantage of roads partially screened by trees, between which nets can be draped, and there are often hedgerows, embankments, or ditches that help to screen moving traffic from oblique aerial view. But our billboards and hot dog stands serve as accents to mark the lines of our super highways that stand out like broad white ribbons against the green landscape.

Certainly those organizations which have done such good planting for "beautification" in peacetime might well bend their energies toward immediate roadside planting to protect our civil and military population in wartime—and for all time! Also the owners of cars should give up the bright shiny nickel finish and the glazed surfaces of bright colored paints and, for the sake of their own safety as well as other's, should repaint their cars with dull neutral shades that do not reflect light. Rows of shiny black cars glisten and shine outside war plants when a searchlight is thrown on them at night, and by day they gleam as if fitted with small mirrors. It may hurt our personal pride to change the texture of our cars into the rough spotted colors of a herd of cattle, but it might save

many lives in case of an air attack.

To date many types of screens have been erected over parking spaces, at huge expense. The best is made of wire netting garnished with imitation foliage, but it acts like a sail in a high wind, which strikes both from above and from below. It also collapses under a heavy snow load, and even when it stands up, this "flat top" requires constant attention—the tightening of guy wires to keep it rigid and the brushing or shovelling of snow to keep it from sagging or collapsing. This means that maintenance expense is great.

Nature has studied camouflage and concealment throughout the animal kingdom and provided protective coloration, counter-shading, and disruptive patterns for many types of animals and insects to assure protection and survival. But man is slow to imitate, and in these peaceful United States enemy attack still seems fantastic—until we remember Pearl Harbor and Wake Island.

So whether for "beautification" or "preservation," let us plant trees and more trees, and enjoy the cool, protecting shade.

A tree has the mechanical quality of flexibility, which a flat top lacks. It is structurally designed to bend but not to break, except in the severest hurricanes. It is held in place by anchor roots, with small hair-like feeding roots that extend out approximately to the tips of the branches. The trunk is of sufficient size and strength to support the layers of branches, and they in turn have enough resilience to give and sway with the wind. In a tropical typhoon, palm tree branches swirl about like pinwheels. Our northern trees are not so flexible, because we seldom have such terrific storms.

The Pine Family Preferred for Groves

For all-year-around protection, the pine family is probably best, since pines spread their branches laterally, instead of tapering to a point like the typical spruce and fir Christmas trees. When pine branches are trimmed high so as to give a clearance of 10 or 12 feet, and when they are planted close enough—16 to 20 feet, so that their branches overlap—they form a solid dense canopy under which cars, trucks, guns, and military equipment can be parked and concealed. Pine needles persist throughout the year and, contrary to the usual impression, pines are rapid growers, especially the Red and Austrian varieties. When given sufficient ground water at the roots, and if the tops are sprayed after transplanting to offset evaporation, pines will grow from 16 to 18 inches a season, as can be checked by measuring the central trunk between whorls of branches.

When mature, a pine will stand 100 feet high, but even small ones are worth planting in groves, close to buildings, to help break up the telltale shadows that shift from west through north to east on every sunny day. Consider a large pine as a permanent type of standard umbrella. A 50-ft. specimen may cost you $200; a 30-ft. specimen only $75. But why is it necessary to use a "specimen"? Nurseries are glad to sell their "poor specimens" or irregular "bad specimens" at a reduced price, and for naturalistic effects these are even better than the symmetrical pine trees. Also it is not necessary to plant trees of only one height. The effect produced is artificial.

Why not use two or three large specimens close to a building to break the roof shadow, add half a dozen Red or Sugar Maples, and then cover the parking space with a checker-board planting of small pines, 20 to 25 feet high, three-quarters pines and one-quarter maples or birch? If well watered and carefully staked or wired so that their anchor roots are not broken by swaying in the wind, and if their delicate feeder roots have a chance to become well established, this pine grove will soon provide permanent camouflage. Instead of an eyesore, the parking space will become a shady restful grove under which cars will keep cool instead of blistering their paint and roasting their tired occupants at the end of a hard day's work.

Yes, pines are expensive, but they are well worth it, and groves of memorial pines might well be planted by patriotic societies in memory of dead aviators, to help protect the lives of workers who are replacing lost planes with new.

The Transplanting Job

One word of warning. Such a transplanting job should be placed in the hands of an expert who has the proper equipment to move the pines and their solid balls of earth without injury. It is a major operation requiring preliminary root pruning, if this has not already been done in a nursery. A good landscape contractor will not only undertake the work on a contract basis, according to specifications, but he will guarantee to replace any losses within the first year. And the work can be undertaken at any season with safety.

Deciduous trees (those which lose their leaves) can be safely transplanted without a solid ball of earth, provided that they have been root pruned for a year or so (as is the practice in all first class nurseries) or if the earth is combed away from their feeding roots and these are wrapped in burlap or some other packing to keep them moist and protected from sun and air during the planting operations.

This means that the same tree-moving equipment can handle a larger deciduous tree than an evergreen with its tons of earth.

The size of the tree depends only upon the price to be paid. There are several reliable firms throughout the United States who will guarantee to move any tree anywhere to produce a given effect.

A canopy of Giant Willows, like this, or an evergreen flat top of Pines, as shown in the other sketch, will shade and protect parked cars.

Willows for Camouflage Screening

For camouflage screening, I prefer the much neglected old-fashioned willow to any other deciduous tree for quick effects. If provided with plenty of root water, it makes a remarkable growth, and although it sheds its leaves in the autumn, the small yellowish branches and twigs, if left to grow naturally without pruning or thinning, form a dense screen over low buildings, roads, or parking spaces, which makes visibility of objects below almost impossible from aerial observation.

Once established, willows create a huge fluffy mass of flexible plumes that wave instead of breaking in the wind, and that automatically shed their own snow load. They are one of the cheapest varieties of trees on the market and, once established in good soil with water in dry seasons, they need the least care. For best effects, plant in groups of 2, 3, or 5, to break the shadow sector of buildings, to screen parking spaces instead of temporary flat tops, and to screen roads and highways. For the willow grows high and wide creating a regular tunnel when planted in double rows. In the low swampy farms of Poland, fences are made of willow wands, stuck 6 or 8 inches into the wet earth, and within two seasons they sprout into a solid boundary like a hedgerow and take root.

Besides its flexibility and rapid growth, the willow is remarkably tolerant of all kinds of soil and atmospheric conditions. Most people associate willows with cemeteries or parks, where they weep quietly over mirror pools. But these same weeping willows can be bolted and trained flat against the sides of tall factory buildings or apartment houses, and within two seasons will completely cover the walls with a curtain of gray-green foliage.

Willows are tolerant of city smoke and soot, and although they prefer a moist, acid, wet river bed, they will grow in hard alkali clay soil on dry hillsides. The better the soil, however, the better the growth. For city conditions, see the trained willows in the courtyard of the Phipps Garden Apartments on Middleburg Avenue, Long Island City, New York.

The Giant, Golden-barked Willow is an old favorite along streams and around farmyards. It can well be used in almost any camouflage planting to help carry native planting over man-made scars. It is the largest variety, but sports freely with other willows. For roads and highways, the most satisfactory specimen is Thurlow's Willow, which is carried by almost all nurseries. It is not as large as the Giant Willow when mature, but still can be depended on for rapid growth and also to form a large irregular foliage mass.

The Laurel Leaf Willow grows about 35 feet high in the form of a stiff, dense, narrow dome with upright branches and thick, dark green shiny leaves. To screen buildings from oblique angles and to shut out the gaze of curious passers-by who might be spies, this laurel leaf willow can be planted in a double row to form a dense hedge, like the privet, but twice as high and twice as thick.

Spacing for Planting

In regard to spacing for planting, nature plants trees close so that they grow into solid masses. We should do likewise. Our unit for parking spaces is 8 or 16 feet to separate car stalls. A double row of parked cars with space between for backing and turning requires 50 ft. overall. This means that, for immediate screening, trees should be selected that have a spread of 20 ft. to cover the cars. Or a spread of 16 ft. would be ample, if cars were parked in single rows. The easiest design is to plant the trees 16 ft. apart, giving space for two cars at 8 ft. each between tree trunks. Some experts object to planting in straight rows because any regular geometric pattern is easily identified from the air. It seems to me that the location of the target should determine the type of planting. If the factory is in a city or suburb which has a gridiron street pattern, then a geometric row tree planting would simply look like a formal little park, and so disguise the parked cars.

If, on the other hand, the factory is located in the country where trees already flourish in irregular groups, then the new tree planting should be adapted to imitate the existing foliage groups as closely as possible. The car rows would have to be curved or have to radiate from the building, and this of course would cover more space. It is a most interesting problem for any one who likes picture puzzles, and it offers a wide variety of solutions.

I trust that this introduction to Camouflage Planting will inspire some of our patriotic organizations and local governments to do their bit of planting along their own roadsides and in their own home towns—for the sake of national defense and victory.

Private Agencies and Public Goals

LEWIS H. BROWN, President, Johns-Manville Corporation, recently addressed the Washington members of the American Economic Association on "Using Private Business Agencies to Achieve Public Goals in the Post-War World." Three significant paragraphs follow:

"When you ask how government and business can make the economic machine work better in the post-war world, I answer, by learning to cooperate—to be mutually helpful, to recognize the proper function of each in our social structure. To avoid dictatorship, we must encourage the private enterprise system to carry the load of providing employment to the utmost, so that government's load will be at a minimum.

"But then some economists will say, 'What about the portion private enterprise cannot do?' If the savings of the system are not reinvested promptly so as to provide work for all, should not government intervene in the economic system to stimulate and assure reasonable employment for all? In reply, I say that if, with every encouragement and inducement, private enterprise were not to provide reasonable employment for all, then the government, by means of guarantees to private enterprise and through its procurement staff, should place orders with private enterprise for sufficient public works and products to supplement and fill the gap left unfilled by private enterprise. . . .

"We must rebuild America. We must not destroy the system that has made America great. Instead, we must use incentives to stimulate private enterprise into channels beneficial to the good of all. Prosperity for America lies not in limiting opportunities for some, but in expanding opportunities for all. Honor and pride, properly appealed to, will put service in the common cause first, and the desire for profit second, as has been proven by this war. Cooperation, not conflict, must guide government, business, labor, and agriculture in their service to our people. From this new spirit and cooperation can come a new America that will be the Eldorado of the whole New World."

Dependability and Low Rates in Municipal Electric Service

What Marshall, Mich., Has Realized from 20 Years of Diesel Operation

By William H. Gottlieb

THERE are two major contributions a municipal power plant can make to the citizens of a community: dependable electrical service, and low rates to the consumer. In the last 20 years that diesels have been the mainstay of the Marshall, Mich., power plant, the city-owned system has amassed an impressive record on both these scores. During this period the plant has never had an enforced shutdown. And Marshall's residential and commercial consumers pay an average of only 2.5 cents per kilowatthour. Deducting normal discounts, the householder is billed on the following rates:

First 30 kwhr at	4.5 cents
Next 50 kwhr at	2.7 cents
All above 80 kwhr at	1.8 cents

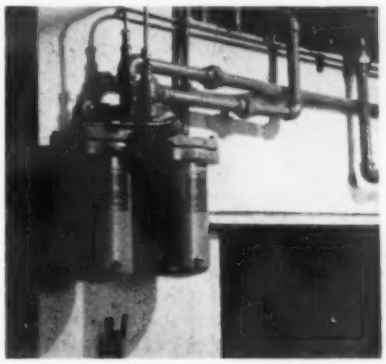
The record is even more impressive because of the fact that the power system has accumulated a large cash reserve, and put $150,000 in the city treasury between 1934 and the present time. In addition, it has provided free lighting for streets, airport, athletic field, library, city hall, and other public buildings.

The first diesels, installed in 1922, were a pair of 550-hp Nordberg engines driving 400-kw Allis-Chalmers generators. These were intended originally as standbys for the hydro-electric power that had served the city since 1893. They shouldered more and more of the growing load and soon became the base load units. The next long step forward came in 1936 with the installation of a 1,250-hp air-injection Nordberg diesel direct-connected to an 850-kw Allis-Chalmers generator. Only recently, the city put into operation the largest unit in the plant, a 1,500-hp, 6-cylinder, 2-cycle, air-injection Nordberg of 17-inch bore and 25-inch stroke developing its rated horsepower at 257 rpm. This engine drives directly a 1,000-kw, 2,300-volt, General Electric generator with V-belted 20-kw exciter.

The citizens of Marshall never have had to pay for power plant expansion with tax dollars. Funds for the original engines were provided by a bond issue, but this was amortized entirely with plant earnings. The third and fourth engines were purchased with money from a reserve fund set up with plant earnings. In fact, the power plant has paid for street lights, transmission lines, water mains, pumps, engines, and other equipment with a total value of nearly $650,000.

This financial record was made possible by the performance of Marshall's diesel engines. The hydro plant is still producing, but in the fiscal year ending April 1, 1942, water power provided 845,000 kwhrs while the plant generated 4,587,500 kwhrs.

A view of the municipal electric plant at Marshall, Mich.

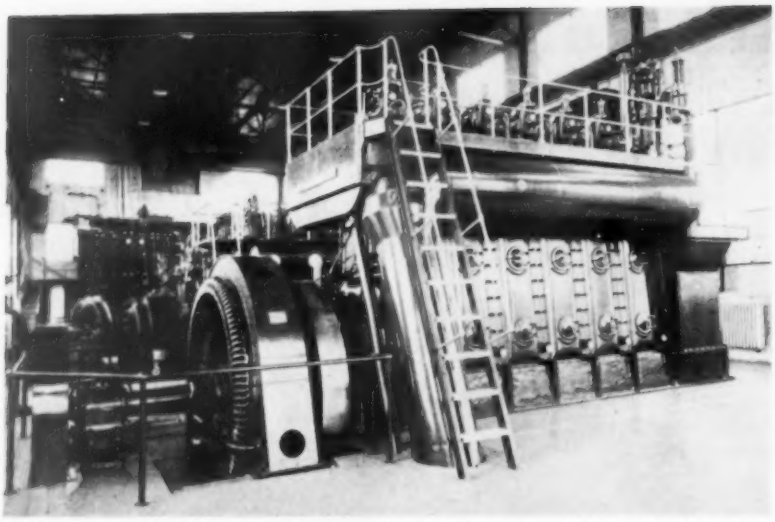


Fuel for the 1500-hp engine is cleaned by this duplex Nugent filter.

The efficiency of the engines is notable. Superintendent Earl Lockwood reports that the old units, with more than 100,000 engine hours in 20 years of service, will return 11 kwhrs per gallon of fuel, under an 80 per cent load, which is actually better than their performance when new. The 1,250-hp engine commonly produces 11.5 kwhrs per gallon of fuel oil at 50 per cent load and better than 12 when well loaded.

The new unit recently installed fits excellently with the rest of the plant. An air-injection unit was chosen to insure good combustion of the heavy fuel Marshall prefers to use. A cross-head type of engine corresponds with the three cross-head engines already in the plant.

The new engine was hooked into the existing fuel-handling system of the plant. The two 50,000-gallon storage tanks are at the foot of a rock embankment on which the plant is situated, and fuel can be unloaded into them by gravity. The fuel is transferred by a Marsh plunger-type pump to two 300-gallon elevated tanks which supply all four engines. This pump is controlled automatically by floats in the supply tanks. The fuel flows by gravity to individual day tanks for each engine, a 300-gallon tank in the basement in the case of the 1,500-hp unit. A built-in engine supply pump de-



Looking inside the plant at the four Nordbergs. The new 1500-hp unit is shown in the foreground.

livers fuel to the Bosch injection pumps. The fuel passes through a strainer and meter between the supply and each engine day tank. The new engine has a Nugent duplex cartridge-type filter between the day tank and the engine.

Clean lubricating oil is supplied to the bearings by a pressure circulating system in which the key unit is a gear pump driven off the crankshaft. A shell-and-tube oil cooler is included in this circuit. To keep the oil in condition, there is a Honan-Crane activated clay purifier in continuous operation. No oil is discarded. The efficacy of lubrication throughout the plant is demonstrated by the fact that operators cannot recall a single instance of ring sticking.

The engines have the further protection of a closed cooling water system. The new engine is served by an Allis-Chalmers centrifugal pump rated at 375 gpm against a 70-foot head. This pump takes soft water from a hot well and puts it through a Schutte and Koerting heat exchanger and then through the engine jackets, returning it finally to the hot well. The raw water is put through the exchanger by a similar pump. The raw water sump is outside near the river and arranged so that river water can enter through screens and maintain the level in the sump. Heated water from the exchanger can be returned to the sump or pumped directly into the river, thus giving the operator a simple means of controlling water temperature. It is also possible to by-pass jacket water around the heat exchanger. City water, put through a softener, is used for jacket makeup.

Air reaches the engines through a 9-unit impingement-type American filter, placed on a platform outside, and an air duct in the foundation. Exhaust gases vent through a vertical Burgess snubber located outside the building.

Every facility has been provided for easy and intelligent operation. A gauge board on the engine informs the operator of lube, water, fuel, and air pressures. There are motor controls on the engine for such auxiliary equipment as jacket and raw water pumps and the auxiliary lube pump. An Alnor alarm panel holds the exhaust pyrometer as well as alarms on lube and water pressures.

The water and light department is directed by a board of three commissioners nominated by the Mayor and elected by the City Council. Present members of the Commission are R. F. Grant, chairman, H. C. Brooks, and G. C. Sanders. The stability of this board is evidenced by the fact that Mr. Grant is now serving his eleventh consecutive three-year term.

WBP to Change Sewerage Setup

Conforms with Recommendation of Technical Groups

SPEAKING at the annual meeting of the New Jersey Sewage Works Association on March 25, Maury Maverick, Director, Governmental Division of WPB, stated that a new section in the Governmental Division will be established to deal exclusively with sewerage and sanitation. This section, he states, will be administered by a man of proven ability in this field. The change coincides with recommendations made by the Sewage Works Federation and the American Society of Civil Engineers, and was framed through the joint action of William Raisch, Chairman of the Process Industries Division and Sanitation Group of the American Society of Mechanical Engineers; George J. Schroepfer, President of the Federation of Sewage Works Associations; and Linn H. Enslow, Chairman of the Sanitary Engineering Division of the Amreican Society of Civil Engineers. All three men have been WPB advisory consultants (see p. 15, Feb. '43).

In outlining what sewerage and sewage treatments must do to fit into America's war economy, Mr. Maverick stated that new treatment plants cannot be constructed unless it can be shown that the sewage contaminated a body of water that is used for water supply. Even then, he states, the cost in war materials must be balanced against improvements to the affected water-treatment plants. "Complete" treatment will not be approved for the duration.

Maintenance of existing sewerage facilities, Mr. Maverick states, cannot be so rigidly curtailed. Changes in WPB procedure under the Controlled Materials Plan have established regulations that make provision for maintenance, repair, and operating supplies for sanitary sewers and sewage treatment, refuse collection and disposal, and storm sewers.

Simplifications of existing orders also is in progress, which should help officials clear their applications for these essential materials. He urged to write the Governmental Division, Reference P-141 whenever problems arise.

Sound post-war planning by municipalities also was urged by Mr. Maverick. "I favor post-war planning especially where the need is apparent and the people are taken into the confidence of the planners," he stated. "This planning should be initiated to the greatest extent in cities, towns, counties, and from states—that is, directly from and by the people themselves who know their own needs. Everyone knows that we need billions of dollars for housing, roads, streets, bridges, sewers, water systems, hospitals, schools, colleges, clinics, and numerous other types of projects. Therefore, I personally believe and advocate that where planning can be done for what appears a future necessity, and it can be done without harming the prosecution of the war, it should be done."

Green-Belts, Traffic Efficiency, and Quietness of Living in Urban Areas

A Plea for Purposeful Dreaming in City and Regional Design

By Eliel Saarinen

"THE CITY—Its Growth; Its Decay; Its Future" is the title of an important book by Mr. Saarinen, to be published about April 15, portions of which make up this article. In a preliminary announcement, the Reinhold Publishing Corporation (330 West 42d St., New York) points out that the book is addressed both to those professionally concerned with planning the future city and "to every intelligent lay citizen who can be persuaded to acquaint himself with the subject. . . . It is theoretical and practical; philosophical but filled with calls for action and plans for that action."

LACK of vision has been the source of many blunders in planning. The roots of this deplorable situation can be traced—as we know—to the materialistic era of the nineteenth century. During this era, vision in planning matters amounted perhaps to little more than the surveyor's skill in handling the theodolite. Inexperience did not realize the dangers of congested growth, for this expansion was an untried phenomenon, and no one seemed to anticipate such conditions as the continuous growth of cities was eventually to reveal. Explosive growth without control replaced conducive vision, with man a mere spectator—stupefied, or falsely proud.

Considering civic growth during the period now in question, it is significant to observe that in many cases the growing city did not emanate from a single town, but from several neighbor towns which were isolated one from another by spacious areas of free green land. In such cases, growth took place planlessly and haphazardly by filling the existing free areas, through which process the formerly isolated healthy towns were transformed into unhealthy parts of one and the same compact city. Ironically speaking, this uncontrolled growth was much of a *"disorderly concentration of orderly decentralization,"* in direct contrast to the present much desired *"orderly decentralization of disorderly concentration."* It was tragic indeed that those green areas which formerly protected the various small towns became intensely crowded as urban territories, creating such an integrated and compact mass of the big city that today's blighted areas and slums are the result. The so-called and much heralded "progress" from small towns into big cities has thus become the backward process from verdant protective lands into slums. This kind of progress was easy to achieve. But there was no reason for being proud of it.

So cities developed in those prosaic days of lack of vision. There was no dreaming. It was just a long and dreamless sleep. . . .

Supposing now that our forefathers, really, had had the vision to understand the importance of protective zones as a means of preventing compact growth; and, consequently, that they had directed the cities' development by preserving the original and natural tendency toward a system of individual neighboring town-communities. Well, in such case a good foundation would have been laid for the cities' growth toward organic decentralization, and our problem were now much simpler and easier. And furthermore, supposing that we, *now*, would take our forefathers' lack of vision as a healthy warning for ourselves, and that because of this we would understand the importance of these protective zones. Well, in such case we could find innumerable instances where this understanding could be excellently applied. To be sure, *there still are many cities and their neighbor townships where growth has not as yet developed so far that protective zones could not be successfully applied. It is only to be hoped that such an application really will take place; if so, the problem of our children then will be much simpler, and future generations will be grateful because of these protective zones of green land—which our long-and-hard-gained "vision" has brought about.*

Free Areas and Decentralization

The most conspicuous characteristic of organic decentralization is the fact that the former urban compactness will be split by it into individual townships, separated one from another by protective zones of green land. In cases where this process of decentralization will be systematically and thoroughly carried out, these green areas of protection will become formed into a comprehensive green-belt system, embracing both the urban complex at large and the various community units individually as well. On these protective green belts, all ordinary building activities must be prohibited during times to come in order to safeguard permanent effects of protection, so essential in the case of organic decentralization. On the other hand, such activities as sports, games, outdoor recreation, and the like—which are by their respective natures related to these green lands—could be advantageously located here for the benefit of adjacent residential areas. Moreover, these green lands must be planned spaciously enough to enable an effective network of fast intercommunication to be established through them without disturbing the logical restfulness on those grounds designed for protection and recreation. It is obvious that this green-belt system will bring lasting effects in so far as the physical conditions in the city are concerned. Equally obvious are even the spiritual advantages of this green-belt development. For, thanks to this, the urban dweller is brought closer to the delights of nature, surely a blessing which cannot be overvalued.

The embodiment of the fast intercommunicative arteries into the green-belt system is the fundamental solution of the traffic problem in the decentralized city; and, in agreement with this, all the other traffic considerations must be conceived and settled. . . . There are two points which must be particularly mentioned in this connection. First, *we must accentuate the significance of flexibility in the planning and construction of traffic ways, because the rapid development of traffic means might easily make subsequential changes and modifications urgent. And second, we must emphasize that the ne-*

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cessity for quietness is essential, and that this quietness must be achieved in the decentralized community in the face of the fact that speedy rushing must constantly go on.

The Blood System and the Traffic System

In order to proceed on a firm foundation, it might be wise to examine the principles of a rather appropriate traffic system—the blood circulation in the human body.

The heart is the center of the blood circulation system. From the heart the large traffic channels—the arteries—leave, carrying blood and needed substances to every part of the body. In the heart the veins end, functioning as transportation lines for blood and used substances. From the heart, the circulation goes to the lungs, and back again; then to the digestive system, and back again to the heart.

The aorta, the arteries, the great vein, and the vein system in general form the main circulation lines for the heavier load. The capillaries—the minute blood vessels between the terminations of arteries and veins—are for local functioning, carrying the divided and diminutive load into the very recesses of every organ.

The whole organization is minutely elaborate. But in its functioning it is logical and simple.

Logical and simple, too, are its principles.

First, because the load is carried directly to its destination without passing through other organs having little in common with this particular load. And second, because the dimensioning of the traffic channels is measured according to the load to be carried. Thanks to these two principles, confusion is prevented in the circulation.

It is obvious that these two principles of transportation are applicable to any circumstance of urban traffic. It is still more obvious that their application to the decentralized urban organism can offer a clear and easily adjustable traffic system of satisfactory efficiency, of whatever kind the traffic may be.

Applying, now, these two principles to the modern and decentralized city, one soon will find how obsolete the street pattern from yesterday really is. For this reason, town design of today cannot lean upon those dormant teachings in town planning which still are seeking their material of instruction from the past. Town design of today has not much in common with the various modes of street-net construction—regular or irregular—which during stylistic times have become crystallized into distinct systems. The street pattern of today and tomorrow must emerge in close contact with the planning work, and its characteristics of design-pattern must spring from the planning work itself. Through this work—when organically carried out in accord with the two above-mentioned traffic principles—one soon will make the encouraging discovery that the modern community can get along with fewer streets as compared with the old street system of yesterday, notwithstanding the fact that the demand for efficiency of traffic has highly increased.

Planning and Dreaming

Certainly planning is dreaming. Dreaming it must be. For planning is that indispensible scheming toward the future which is innate already in the child as he keeps his budding imagination hopefully alert; and which scheming has, during past times, infused vitality into individuals, families, communities, nations, and into humanity at large; and without which scheming man were but a prosaic matter-of-fact-specimen of daily matters-of-fact. The first imaginative steps in any progressive movement have always been taken by those all-too-rare individuals who happen to be imbued with vision. In fact, on these men, so frequently and disdainfully classified as "dreamers," hinges man's continuous effort to improve his future.

—Eliel Saarinen.

Moreover, whereas formerly every street was constructed to carry traffic from everywhere to everywhere—as is particularly the case with that stereotyped gridiron pattern—the street system of tomorrow is on the contrary, distinctly discriminative in this respect. . . .

In sharp contrast to this kind of rigid scheming of communicative arteries which cannot be changed to satisfy changed traffic conditions, the green-belt system can offer the needed flexibility. The green-belt system gives every opportunity to keep traffic efficiency permanently up to date; for here, any alteration in any direction at any time can be made within reasonable costs. It must be observed that within the green-belt system the bulk of road construction can happen on the natural ground level, and that such features as subways and elevated highways—those emergency products of concentrated confusion and lack of previous planning—can be obviated.

Air Traffic

Speaking of future traffic problems, air traffic should not be left unconsidered. Because, just here, an equation must be solved with too many unknown quantities to give anywhere near an exact answer; just here, consequently, flexibility of planning is most important to assure future satisfaction.

Long-distance air traffic is already fairly well established, although it still is a combination of air and land means, in so far as the traveler is compelled to use land-traffic vehicles when going to and from the rather distant airport. The question is whether or not this system will be satisfactory in the future when the aeroplane—or something of that kind—will be used for daily commuting more or less within the decentralized urban territory, if such be the demand in the future city. Evidently such an arrangement would not meet with future approval; for the present airport, situated for obvious reasons in the outskirts of the city, cannot serve the daily air traffic of limited distance. This means that landing fields and parking areas—of whatever kind they may be in those future days—must be scattered along the broadened urban pattern wherever this seems necessary and appropriate. Because it does not seem possible that roofs, terraces, and the like—as has frequently been suggested for the future solution of the air traffic problem—could be either appropriate or sufficient for such purposes, our suggestion is that even needed areas for air-traffic purposes can be had within the green-belt system.

Quietness of Living

Another point for close consideration is the previously indicated friction between efficiency of traffic and quietness of living. No doubt, to bring this friction to a satisfactory end is one of the major problems of organic decentralization; for, as said, in spite of the importance of efficient traffic, the bringing of quietness into the city is essential indeed. Surely, *city quietness is one of those good qualities that have been lost during the progress of things.* . . .

Furthermore, an important objective of organic decentralization is to concentrate speedy traffic along separate arteries such as do not traverse or disturb residential areas and other grounds requiring silence. Due to the fact that protective belts of planted

free areas are planned between the residential areas and the highways of speedy traffic—through this to isolate noise—it is evident that organic decentralization endeavors to undertake all possible steps to establish humanly livable conditions in the city. . . .

Economic and Legislative Hurdles

The chief objections to a major operation which aims to save the city from eventual disaster are of economic and legal nature. *Indeed, it sounds almost paradoxical to harbor economic objections to economical rehabilitation of an economically disastrous situation. It sounds almost equally paradoxical to have justice object to such steps as endeavor to bring justice into an unjust situation.* Yet such is really the case on the economic and legal fronts when it comes to the changing of civic conditions from present disorder into future order. It is so because the prevailing economic and legal viewpoints are the results of a long-lasted concentration; and, consequently, there exists a prevailing tendency to look with prejudice and a lack of open-minded understanding upon those economic and legislative demands caused by decentralization. . . .

Certainly, economic laws cannot be infringed.

Supposing, for example, that you had bought for speculative purposes a certain amount of stock at a "boom" price, and the boom had suddenly come to a definite end; do you think that your business in such circumstances could be maintained on an economically sane basis without writing off the loss? Scarcely. Well, in analogous circumstances, when urban values are at stake, it is equally important to write off the loss; for only by boldly facing such losses, individual or communal, can a normal state of things be achieved. On the other hand, if these losses are not boldly faced, and the abnormally high values are artificially maintained and super-imposed upon the living conditions of the population, an increasingly abnormal state of things must be faced—ultimately with dire consequences. Therefore, before we can proceed in our discussion about these matters, it is of fundamental importance to accept the fact —even in practice—*that there are no other directives for urban property valuation than those directives governing sound economic valuation in general. Surely, the amount of potatoes decides the value of that land which produces those potatoes. . . .*

Zones of Protection

In order to bring security into the situation, zones of protection—"no man's land" if you will—must be planned between areas of different functions and spirits. These zones of protection would not only halt the noxious trespassing commandingly—"Thus far shalt thou come, but no further"—but they would even isolate noise, restlessness, and many other negative qualities so characteristic of the nervous city of today.

In terms of protective no man's land, also, must planning be conceived, whatever relationship this protection may concern. These relationships are many and different. For example: interrelation between industry and business; interrelation between business and the various centers such as civic, cultural, and educational; interrelation between all these and the various residential groups of different nature and grade and housing different classes of people; and so on. These various groupings of activities must have enough land on which to expand. And their respective lands must be protected by planted zones. In this manner, the community's sane growth is made possible—and, thanks to the protective measures, property values are stabilized for times to come.

Assuming now that these various functions—traffic, residence, industry, and business—of the individual community-unit had been separated one from another by zones of protection, these community units would then have become organically decentralized. So to speak, they would exhibit a miniature picture of organic decentralization. Furthermore, assuming that the whole urban complex had been handled in the same manner with protective zones, the whole urban complex, then, would have gone through a systematic process of organic decentralization—*and all this for the mere sake of "value stabilization."* In other words, through our analytical examination of stabilization of property values we have arrived at exactly the same conclusion as we previously arrived at when studying town-building problems in the light of both urban rehabilitation and proper functioning. More than that. We have found that the protective measures of value stabilization go hand in hand with humanly livable conditions in the city.

Also, *though we may choose any angle from which to scrutinize civic problems, the satisfactory solutions in any field of civic activities point all the same toward organic decentralization. Such is the case even with the problems of value stabilization, as we have now learned. That is, organic decentralization in itself is a process which by its very nature is most effective in the stabilization of property values.*

AMA Creates Committee on Post-War Planning

THE rehabilitation of blighted areas, the provision of an adequate and stable source of revenue, stabilization of urban land values, provision of off-street parking facilities, ways and means of meeting the problems created by the dispersal of city residents to suburban areas —these are only a few of the rapidly accruing problems which the cities must make preparations to solve.

In order to emphasize the importance of thinking and action by local governments toward the solving of problems which accumulate during, or are brought to a crux by, the war, the American Municipal Association has created a Committee on Post-War Planning. The members of this committee are Mayor Wilson W. Wyatt of Louisville, Chairman; Mayor Charles E. Lee of Decatur, Ill.; Herbert Olsen, Director, Michigan Municipal League; and Earl D. Mallery, Exexecutive Director, American Municipal Association. The AMA in its *State League Notes* for March 1, 1943, reports on the plans and progress of this committee.

The committee expects to use all the material, facilities, and advice it can obtain to stimulate a program of action for cities. The scattered examples of comprehensive municipal post-war planning programs now under way will be studied and reported upon. It is anticipated that a series of regional meetings will be held in which representatives of local governments can discuss their problems and gain a comprehension of their magnitude. The present committee probably will be enlarged as members who are authorities in various fields of planning are added.

Since the initiation of the program, the Executive Director has accepted an invitation to serve also on the Programming Committee of the Conference Committee on Urban Problems of the U. S. Chamber of Commerce. In the first meeting of this committee held early in February, it was decided to stimulate general discussion of urban problems of all types with special reference to those which will result from post-war conditions. The committee has undertaken to furnish local organizations and community interests with data and information deemed either to aid in the formulation of solutions or in the education of commuity leadership with respect to the nature of the problems. With respect to specific activities, they intend to hold conference meetings at intervals in Washington. A series of pamphlets, uniform in size and style, on selected subjects will be published. The pamphlets will be prepared by individuals and organizations and will be edited by the program committee. It is planned, also, to organize radio forums on selected subjects within the field.

Philadelphia Fire Bureau Gets Cooperation and Gives

9 New Aerials and 29 New Pumping Engines— 16% Fewer Fires at Peak Industrial Production

By WILLIAM F. COWDEN
Chief Engineer, Fire Bureau
Philadelphia, Pa.

THE Philadelphia Fire Bureau was not always in the excellent condition it now is. During fifteen years few pieces of apparatus were purchased; consequently pneumatic tires were a luxury, and pumping engines twenty years old were not uncommon tools with which our firemen had to work. The wonder is that our record was so good, for during that dark period Philadelphia was awarded anywhere from honorable mentions to the grand prize in the annual Fire Waste Contest.

New Fire Apparatus

The City Council agreed that the Bureau of Fire rated a new deal. This time our request stuck in the budget, and we purchased 9 American-La France 85-foot aerial ladder trucks, 13 Autocar triple combinations (pumping engine, hose, and 100-gallon booster tank), and 16 Ward LaFrance triple combinations. Very recently we added two Autocar machines with 3½-inch hose for use on our high-pressure system operating up to 300 pounds per square inch; and also a Ward LaFrance quadruple combination, with the triple features plus a 55-foot hand-raising ladder, for the fire house nearest the airport.

The present set-up includes:

- 1 chief engineer's car
- 16 cars for chief officers
- 70 engine companies
- 28 85-foot aerial ladder trucks
- 5 pipe-line cars equipped with 3½-inch hose for service in the central city high-value district and in the north and northeast mill districts
- 1 rescue squad car
- 8 emergency crew trucks
- 3 fire boats
- 3 water towers which do valuable service in preventing the spreading of fire in narrow streets

Of this equipment, the officer's cars, 29 pumpers, 9 85-foot aerials, 2 pipeline cars (for high-pressure service), and 6 emergency crew trucks are of modern design. On apparatus of companies in outlying sections, Indian fire pumps are carried for extinguishing brush fires and for the many small fires difficult to get at or where it is especially desirable to prevent water damage.

PHOTOGRAPH FROM PHILADELPHIA INQUIRER

One of nine new aerial ladders saving a life at a recent Philadelphia fire.

Hose

The engine companies carry a total of 118,000 feet of 2½-inch Eureka, Fabric, and other makes of cotton-rubber-lined hose, 14,000 feet of 1½-inch, with an equal amount held in reserve for emergencies, and also 24,500 feet of ¾-inch and 1-inch rubber hose for combating smaller fires. The pipe line companies carry 6,000 feet of 3½-inch hose, with a like amount held in reserve. The fire boats carry 1,000 feet of 3½-inch hose, 1,000 feet of 2½-inch, and 200 feet of 1½-inch cotton-rubber-lined hose, also holding this same amount in reserve. The total capacity of our pumpers, fire boats, and high-pressure pumping stations is 120,000 gallons of water per minute, ample for our normal fire-fighting needs.

In about half of January 1943, Philadelphia had three 3-alarm, one 4-alarm, and one 5-alarm fires. Although they occurred when high winds, bitter cold, and icy streets added to the difficulties of fire-fighting operations, they were all controlled within a short time, and serious conflagrations averted.

Since 1926 we have had only one rescue squad of firemen with special training in first aid and methods of combating fires in buildings heavily charged with smoke or poisonous gases and fumes. Six more rescue squads have been organized and, because new trucks are unobtainable, equipped with second-hand trucks we have purchased. We hope to replace these with new trucks when possible. The effectiveness of our preponderantly Gamewell fire alarm system is shown by the fact that 29 per cent or 1 in 3½ calls come by box.

Repairs

The fire bureau emergency crew, which is composed of 1 captain, 1 lieutenant, and 24 men, all skilled mechanics, is responsible for keeping all fire apparatus in running order. During 1942 they made 7,339 repairs to apparatus; did 600 hauling jobs; 8 wrecker jobs; responded to 40 special fire calls for lighting equipment and 37 extra alarms of fire.

The Men

The personnel of our Fire Bureau consists of one chief engineer, 4 deputy chiefs, 23 battalion chiefs, 112 captains, 112 lieutenants, 1 captain of fire school, 8 fire-boat engineers, 16 fire-boat firemen, 8 pilots, 2,000 hosemen and laddermen, 1 principal fire dispatcher, 2 senior fire dispatchers, 1 principal clerk, 1 secretarial stenographer, and 108 janitresses.

War Fire Defense

When it became apparent that fire was to be one of the major weapons in the present war, we organized a fire defense division in the Fire Bureau, whose duty it has been to survey the city from a fire-protection standpoint, to coordinate the efforts of all agencies which would work together in strengthening our peacetime organization, and to make preparations for the

tremendous burden which sabotage and raids could throw on the Bureau.

Large maps were made for each engine company district showing all buildings, both industrial and private, and all fire alarm boxes. Churches, schools, and public buildings were prominently marked. Separate maps were made for the crash fire-boat of the marine division. A key or master map was made for the fire defense room at fire headquarters.

A complete survey to locate all industries was made, with the name of the firm, address, and products manufactured compiled in card lists by engine company districts. These lists were turned over to the plant safety engineer corps, which cooperates with the fire defense division by forming industrial auxiliary fire brigades to work in conjunction with the civilian fire brigades.

The auxiliary firemen, who have been trained to work directly with the regular fire forces and the men who have returned to their places of employment to form the industrial fire brigades, make available approximately 7,500 men who have received training at the fire stations. All extra fire apparatus has been equipped with hose and tools and stored in strategically located stations, ready to be placed in service by off-duty firemen.

Auxiliary Fire Equipment

The responsibility of furnishing the additional apparatus, hose, and equipment which the auxiliary firemen will use has been assumed by the Office of Civilian Defense. This equipment is being distributed to the "target areas" as quickly as it becomes available. There have been unavoidable delays in the delivery of this equipment, as the rugged service demanded of fire appliances requires the use of critical materials.

Already, approximately 800 of our regular men are trained to operate the auxiliary pumpers, and these men will be instructed as the pumpers are placed in service. We will receive a total of 265 auxiliary pumpers. These will be stationed throughout the city under the charge of the engine company commanders in whose districts they are located. Approximately three auxiliary companies will operate in each regular engine company district, and each one will be in charge of an officer detailed from the Fire Bureau.

Upon the sounding of an air raid alarm on our 227 Federal Electric sirens, the auxiliary firemen will report to their stations and from then on will carry out their orders as received from fire headquarters. At this point the Bureau of Fire will start to function as part of the citizen's defense corps, whose job it is to coordinate all protection services during emergencies. Fire officers have been trained to work in the control centers, and the dispatching of fire apparatus will be handled through them.

To expedite the dispatching of fire apparatus, the Fire Bureau has set up a fire control center which will be in constant communication with each of the regular control centers of the defense corps. This fire control will be the nerve center of the entire fire department, and careful preparations have been made to keep communications open at all times, for the success of all the plans we have made will depend on the rapid response of apparatus to fires.

We have a complete inventory of the fire-fighting equipment available to us in the surrounding Pennsylvania counties of Bucks, Montgomery, Delaware, and Chester, and the New Jersey counties of Camden, Burlington, and Gloucester which comprise our metropolitan area. No detail has been neglected in completing our plans for the safeguarding of Philadelphia's citizens, their homes, and our vital war industries from the ravages of destructive fire should they become wholesale. What we need most now is the continued whole-hearted cooperation of each citizen of our city.

PHOTOGRAPH FROM PHILADELPHIA INQUIRER

Taming a recent hot fire with Philadelphia's new apparatus which helped to make the excellent showing for the year 1942.

The front cover photograph from the Philadelphia Record gives a glimpse of action at the February 1943, Columbia Street fire which was equivalent to eight alarms.

We believe this public cooperation is already in evidence. We cannot otherwise explain the 14 per cent drop in alarms and the 16 per cent drop in actual fires in 1942 when the "Workshop of the World," as our city is sometimes called, was going full blast. Here are the figures:

16 Per Cent Fewer Fires

	1942	1941
Total alarms	11,748	13,389
Boxes	3,414	4,032
"Locals"	8,281	9,240
1st alarm	8,907	10,590
2nd or greater alarm	33	39
False, Box	818	1,045
False, "Local"	341	436
	1,159	1,481
Unnecessary	657	526
Operations other than fire-fighting	938	836
Actual fires	8,941	10,429

We had trained 75 men to head industrial fire brigades. Our fire-prevention measures and inspections were stricter. Our card records of all war industries and firms and all other manufacturing establishments gave us better advance knowledge of what to expect at factory fires. These activities, in addition to those of civilian defense and the general new picture have made our people fire conscious. This is good for them and for us—now—and we expect that after the war the Fire Bureau will mean more to everybody.

About . . .

Sludge Gas Engines

In the Small Sewage-Treatment Plant

By HENRY W. TAYLOR

THE fundamental principles in the utilization of sludge gas for power production were briefly mentioned on this page in the March issue. It was suggested that these factors could best be emphasized by the discussion of illustrative cases where assumptions can be made regarding quantities and conditions.

As a first case, we may take a community of approximately 10,000 served with pumped and filtered water and a sewage works including preliminary treatment only. Water is pumped from a clear well and raised 75 feet to a distributing reservoir; the filter plant is operated with three shifts; the sewage is pumped under low head; the sewage works is served by one eight-hour shift; the garbage is collected separately and can be diverted to the sewage works for grinding and digestion with the sewage sludge in existing and additional sludge tank capacity.

Using Ground Garbage

Combining the ground garbage with the sewage sludge, the plant should be able to produce gas at the rate of 2 cubic feet per capita per day even during the poor production winter months of November to March. On this basis, a minimum of 20,000 cubic feet of gas will be available and 800 kwhr can be produced per day. The demand at the two plants will be assumed as follows:

	kwhr	kw
Water pumping	288	12
Filter plant	80	10
Sewage pumping	240	10
Garbage grinding	75	25
Air compressor	37	8
Lights, etc.	80	5
	800	70

Location of Units Important

The location of the generating units is important and requires study. If the power plant were installed at the sewage works, additional attendants would be required. If the installation were placed in the filter plant, the heat from exhaust gases and the jacket circulating water would not be available for the heating of the sludge tanks. If both the water and sewage plants were located favorably, it might be feasible to install, between them, a small pipe line for gas and an electric cable and thus place dual power units of forty kw at each place. The unit at the sewage works would be operated while the attendant was there and then shut down. Sludge tanks, carefully insulated, would be heated by means of an economizer on the exhaust and use of the jacket circulating water, combined with a hot water storage tank. Dual installations would be provided in case of emergency or repairs. The available heat from the unit at the filter plant can be used for heating the building.

No additional expense for operators would be involved in such an accommodation to local conditions. The costs for repairs, oil, and interest on investment would aggregate about $2,300, while the estimated cost of the electric power supplanted by the gas engine installations, with energy and demand charges at two separate locations, probably would run $8,300 per year for these small quantities of power. This would net a fat annual saving of $6,000.

DON'T LET SIZE ALONE BE AN OBSTACLE

The utilization of sludge gas for power does not need to be confined to the larger plants. When gas production is stimulated by the addition of ground garbage, a number of possibilities present themselves. Power can be used for pumping not only in the sewage-treatment plant but in the water works as well, provided locations are favorable. Heat for the digestion tanks can be obtained not only from the jacket water in the engines, but also from the exhaust gases. In any case, careful studies will dictate how these applications will fit individual plants.

Other Limitations

It is obvious that these assumptions will not fit every case. Plant locations, character of the garbage, and quality of the sludge might throw the picture out of focus. Furthermore the plant is in the lower limits of practicability when considering this use of garbage-sewage sludge gas.

In the smaller communities, the heat value of the exhaust gases and the jacket water must be utilized as well as the power, since the gas which previously was used to heat the sludge tanks can no longer be devoted to that purpose, and when power is developed off the sewage-works site some use must be made of these heat values to reclaim greater value from the gas. Any plan for this range of capacity must be carefully studied if the development is to be economical.

In general, a gas engine should be used for as many hours of the day as the case will permit, in order to make it earn its capital charges. Intermittent or part load operation will generally militate against the feasibility of the project. There is a wide difference of opinion as to the comparative advantages of the slow speed, heavy duty engine and the higher speed light engine.

However, the writer would lean toward the heavy type engine as the more reliable and more lasting installation, but would by no means exclude consideration of the alternate type and its adaptability to certain cases.

Interconnection with Electric Utility

There are isolated instances where the power produced by a sludge-gas engine installation can be delivered to the local power circuits during a short period of peak loads at the price of utility power. Gas storage would be involved in such a scheme, and these cases are few due to the multiple interchanges of power which public utilities have developed, thus reducing the number of small capacity electric services.

A rather ideal but actual situation was encountered in the field which will be discussed in the next article and which will include several methods of utilization of by-products of a sewage works, including the gas engine.

Atlanta Auditorium Gets Modernized Front Without Critical Materials

ON March 2, 1943, the new addition and entrance to the Atlanta Municipal Auditorium were completed and formally opened to the public. A brief history of this building and the story of the new front, which was built despite extreme shortages of materials, should prove interesting to readers of THE AMERICAN CITY.

In 1909 the Atlanta Auditorium-Armory—a stolid red brick building with granite foundation, wooden ramps, and earth floor—started its career of service to the community. Since that time there have been hundreds of kinds of gatherings there—political rallies, flower and automobile shows, graduation exercises, boxing and wrestling matches, dog shows, basketball tournaments, rollerskating derbies, circuses, as well as the operas presented in the spring by the Metropolitan Opera Company of New York. In addition the building has served as the headquarters for Georgia's National Guard Unit, the 179th Field Artillery.

In 1936 the City of Atlanta, in cooperation with the Federal Government through WPA, began a two-year job of modernizing the Auditorium-Armory. A permanent floor was installed, the exposed steel girders were covered with a ceiling, and the auditorium proper made fireproof.

On Armistice Day, 1940, the front portion of the building, the only part which had not been made fireproof, was completely destroyed by fire. As late as June 1942, when Mayor Hartsfield assumed office for his second term, the front portion consisted only of concrete foundations and columns and, in the face of WPB demands, there was little hope for the completion of its reconstruction. Mayor Hartsfield did not heed advice to "forget the Auditorium for the duration" and set out to prove that with the use of a little ingenuity and by means of substitutions, adaptations, and improvisations the job could be done.

The handsome Georgia marble exterior could be built as intended, building stone being a non-priority item. The bronze marquee was temporarily shelved in favor of concrete; rich walnut took the place of metal for the doors; and elevator shafts have been built although elevators will not be installed until after the war. The heating plant (minus air-conditioning for the present) was improvised largely from second-hand materials; especially designed wood sash replaced metal; temporary lighting fixtures were obtained in the open market or found already in possession of the city. Needed radiators were "stolen" from parts of the connecting main building. A motor generator needed for the showing of motion pictures came from the Municipal Airport where it had once been used to provide power for the field lights.

Thus, without the use of a single priority for any critical material needed for the war effort, the task was completed on March 2 of this year and the building was ready for use. The original nameplate (containing the names of the civic-minded citizens who built the project and sold it to the city in 1907), which was recovered from the fire, was reinstalled on the building, and the persons whose names appear on it, or their sons, were invited to sit on the platform at the dedication.

The building has been especially designed for civic gatherings, industrial shows, and conventions, and offers the largest exhibit space of any similar building in the Southeast. The Auditorium proper will seat 5,163 persons, and the 100-foot stage is ample for any type of entertainment from pageants to grand opera. Joel Hurt Park, planted with Southern flowers and trees, forms an appropriate "front yard" for the Atlanta Municipal Auditorium which is, as THE AMERICAN CITY wrote in 1911, "a civic asset of inestimable value."

Atlanta's Modernized Municipal Auditorium

To Prevent Destructive Decentralization

AN urgent plea for the replanning of the older sections of our cities, to forestall a post-war stampede to the suburbs, was voiced before the Cleveland Real Estate Board on March 24 by Charles T. Stewart of Washington, D. C., Director of The Urban Land Institute. To quote in part:

Words like "escape" and "flight" which are invariably used to describe the outward movement of population, implies that transportation alone is not fully accountable for the uneconomic spread of cities. There is something disagreeable from which the public has wanted to escape, and it has used improved transportation as a means of escaping. It would be more realistic to look at urban decentralization as the result of unequal competition—competition between old environment, obsolete, unsuitable for modern living, and unattractive for normal family life, with a new environment created by the ingenuity of our subdivision developers who sensed the needs of the public and provided a marketable commodity for them in the outlying areas.

If this disintegrating force is to be overcome, our cities must do what every businessman knows must be done in confronting competition. The competition must be met. Superior environment that lures people miles and miles from the center of the city must be created in the older areas. Because we associate this environment with the outlying areas, we assume there is a special excellence in mere distance between home and work. There is surely no excellence in mere distance.

The thing that is excellent is the neighborhood quality that we have been able to get only at a distance. Good neighborhood quality—modern street systems, better lot shaps, less intensive use of land, effective protection from intrusion of harmful land uses at accessible, close-in locations, can meet this competition and be more acceptable to the public than at tremendous distances from centers of urban commerce and culture. . . .

If we are to bring the best that we have in modern urban environment into the areas that now waste our civic resources, we must do it square mile by square mile. Past efforts of private enterprise to accomplish this clearly indicate the needs for an effective post-war program. They are (1) a source of credit that can be used for the large-scale purchase of land for redevelopment by private enterprise and by public improvement, and (2) a broadening of municipal land acquisition power that will permit the cities to acquire land in large contiguous areas for this purpose.

To Preserve the American Way of Life

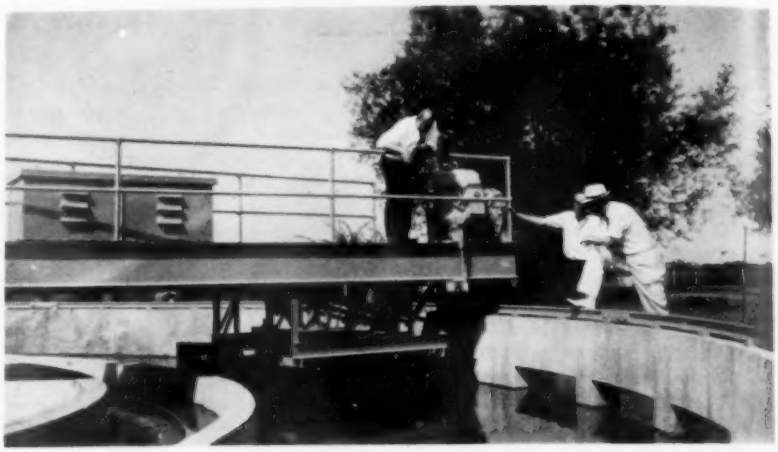
FOUR conclusions from an address by T. Spencer Shore, Vice-President and Treasurer of the General Tire & Rubber Company, before the Sales Executives Club of New York, January, 1943.

"If the American way of life—the free enterprise system—is to survive:

1. "Men in industry must realize that government is going to play a more and more important role in our national economy.
2. "Men in industry must understand government and they must take an active interest in it.
3. "Men in industry must realize that we are in a people's age and property rights will be respected only if human rights are respected.
4. "The American people will have to want it badly enough to fight for it on the home front."

On the foregoing subject see also "Business and Government in the Post-War Years" and "Preparing for Post-War Competition Among Cities," in THE AMERICAN CITY for March 1943, pages 69 and 83.

Polishing the Effluent



The new magnetite filter gets a try-out at Freeport. E. B. Bush, Frazier-Brace representative (left), explains its operation while Edwin McKeeman (center), superintendent, and Herbert Wood (right), village engineer, watch its operation.

Freeport, N. Y., Adds Filters and Sludge Concentration Facilities to Improve Its Already Well-Equipped Plant

WHEN Freeport, N. Y., decided to improve its sewage-treatment facilities back in 1941, it had become dissatisfied with a plant that many cities comparable in size would have envied. Handling a strictly domestic sewage in a separate sewer system, the plant used the process of chemical precipitation, sedimentation, and separate sludge digestion, dewatering the sludge with a vacuum filter and treating the effluent by post-chlorination. Superintendent Edwin C. McKeeman says there were some shortcomings in the plant. Like many plants that have had to "grow" to accommodate their increasing population, the design was not entirely perfect. To remove the sludge from the hopper-bottomed sedimentation tanks required an excessive amount of pumping. The digestion tanks were thus overloaded, which made it impossible to maintain the proper temperature for digestion, resulting in cutting down gas production and returning to the raw sewage of a large volume of supernatant liquid of poor quality. It was to overcome these problems that the 1941 program was instituted.

Freeport is one of the many suburban communities located on Long Island, N. Y. Rated as a "village," it has a population of more than 20,000 with practically all persons served by this plant. Although most of the residents commute to New York, the people have a strong civic spirit. This is one New York community that operates its own water, sewer, and electric services and maintains a complete and prompt garbage and refuse collection service as well, utilizing its own municipal incinerator.

Shows Excellent Maintenance

The plant, incidentally, reflects this keen pride in civic operations. The spotless floors, the polished metal work, as well as the excellently maintained buildings and equipment, are evidence of operators who take pride in their plant and do not overlook any details.

Sewage treatment began in 1929 with the construction of a 1½ mgd plant supplying plain sedimentation and separate sludge digestion. However, as the community grew in size and more people connected to the system, it became apparent that these facilities were not adequate. Located close to the ocean, near bathing beaches, recreational areas, and fishing facilities, the plant was watched closely by state and county public health authorities as well as by conservation in-

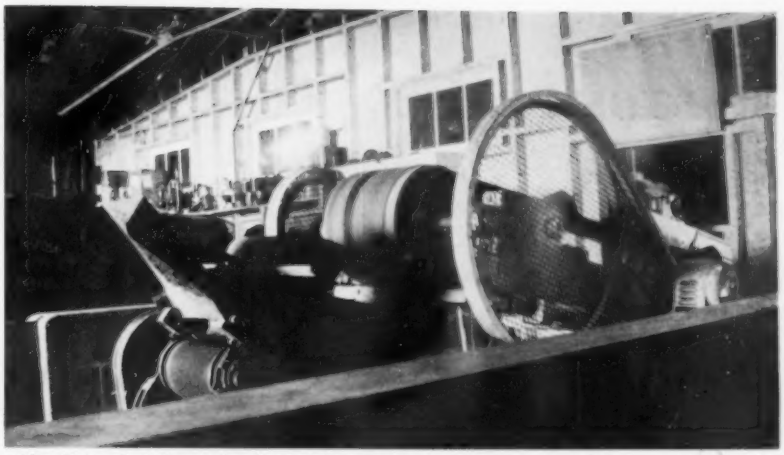
terests. As a result, when difficulties presented themselves, village authorities were quick to hear about it.

Experiments with Chemicals

In 1933, when the first enlargement was planned, Lawrence Luther, Manager of the Department of Sanitation —now serving overseas—initiated some experiments on chemical treatment with the view of increasing the effective capacity of the plant. Herbert M. Wood, Village Engineer, working with Clyde Potts, consulting engineer, reported favorably on the process, and plans were drawn for improvements to the plant to include chemical treatment, modification of sludge digestion tanks to provide for heating and gas collection, and vacuum filtration of sludge to replace glass-covered drying beds. The inlet portions of the two sedimentation tanks were converted into slow-speed mixing basins 20 feet square and 16 feet deep with hopper bottoms and horizontal paddles mounted on vertical shafts in the centers of the tanks. A Wallace and Tiernan chemical feeder administers ferric sulphate into the sewage at the rate of 80 ppm.

Added Facilities Needed

Later, when the 1941 improvements were planned, Weston Gavett, who had participated in the previous investigations and design, was called in for consultation. It was apparent that the sedimentation basin facilities were not adequate and that the large volume of fresh sludge discharged to digestion tanks a major difficulty. Two possibilities presented themselves. The first was to redesign the entire plant making it large enough to treat the sewage by some process such as sedimentation with chemical treatment and separate sludge digestion without a clarifying filter. The second was to add such



The disposal of the sludge is set up on a permanent basis. A belt conveyor brings the filtered dewatered product to a Royer shredder that puts it in optimum shape for use as a soil conditioner. In the far background may be seen the Oliver-vacuum filter that dewaters the sludge delivered from the digestion tank.

improvements that would solve the immediate problems. Although when the plans were drawn America was not at war, nevertheless officials anticipated that difficulties would present themselves which would make a large program hard to complete. Therefore they decided on the less extensive plan which could be completed more quickly.

Another factor was that the cost of the larger plant would have been unduly high. The swampy, tide-water ground has a low bearing value, and all the structures would have to be laid on strong foundations supported by piling.

Revisions

The revisions that were approved included concentrating the sludge from the sedimentation tanks in a thickening tank to reduce the volume and filtering the effluent from the sedimentation basins in a magnetite filter. This produces a clear, sparkling effluent much more easily sterilized by post-chlorination. The effectiveness of the treatment can be seen by the test figures showing as low as 5 ppm suspended solids in the final effluent.

The pumping station also was enlarged. A comminutor replaced the old hand-operated hand screen, and new large pumps increased the station's capacity. The entire program raised the capacity of the plant to 2.3 mgd average daily flow, with capacity for much higher peak loads.

Plant Operation

The efficiency of the improved plant may be observed by examining its operation. Sewage is collected throughout the town and first delivered to the pumping station. It passes through a Chicago comminutor and goes to a 30,000-gallon storage well. Here it is pre-chlorinated to prevent an odor nuisance, since the station is located in a residential area, and pumped through a 30-inch force main to the treatment plant at the edge of town. The three Fairbanks-Morse pumps that perform this work have a combined capacity of 10½ mgd. Two are new units of 4½ mgd capacity; the older 5-inch pump is rated at 1½ mgd. All are electrically powered, but auxiliary gasoline engines are available in case of power failure.

After delivery to the plant, the sewage is given its treatment of 80 ppm ferric sulphate and then proceeds to the slow mixing chamber. Air mix for preliminary rapid mixing was tried here at one time, but was abandoned because of its tendency to break the floc. The sewage then proceeds to the hopper-bottom sedimentation chambers providing 1.3 hours detention at the rate of 2.3 mgd. The hoppers are supplied with lead pipe flushers to loosen the sludge and to prevent arching.

(Concluded on page 103)

A general view of the Freeport plant.

Prospecting for Water in a City of Oil Wells

What an Oil-Boom Did to the Water Supply at Centralia, Ill.

By E. W. De Berard
Resident Engineer
Greeley and Hansen
Chicago, Ill.

WHEN a city in an area rich with oil wells deliberately sets about to avoid one of these "black gold mines," you might say that it is in the same category as the man who bit the dog and deserved a little notice. Centralia, Ill., found itself in this peculiar predicament a few years ago, and as a result the writer had the unique experience of being the only man in a town full of oil-drillers who was trying to *not* find oil.

Centralia, located some 70 miles east of St. Louis, has a population of about 16,000. It accommodates the shops of the Illinois Central Railroad system and serves as a distribution center for such products as peaches, apples, and pears. Many coal mines are located close by, and the oil developments have added a great deal to the city's commerce.

As far as the water supply is concerned, Centralia's troubles began back in 1930 when geologists located the rich oil-producing Centralia Townsite Pool. The drilling that resulted, plus further geological studies, indicated that the most productive portion of the pool was directly beneath Lake Centralia, the source of the city's water supply. The rush of "wild-cat" operations, like the rush of gold mining, was practically impossible to control, and the water department uneasily observed wells being drilled as close as 20 feet from the edge of the lake. Under these circumstances the city realized that it had better do something about its water supply and do it while there was still time, or else drink a combination of oil and salt water whenever anyone was thirsty.

Consequently, in December 1938, the writer, representing Greeley and Hansen, consulting engineers, who had previously designed and constructed the filtration and sewage-treatment plants here, found himself in Centralia hunting for a source of water free from oil potentialities.

As a matter of fact, when the city decided to abandon the existing source of supply, it did not have to write off a perfectly operating asset. The drainage area and reservoir capacity, ample during normal times, fell dangerously low during the three dry years of 1939, 1940, and 1941. Moreover, the reservoir was connected with the city plant by a 20-inch wood stave pipe-line over 30 years old. Finally, the steam pumping station, built back in 1922, was in far from top shape. The boilers needed replacing, the building was not fireproof, and the pumping engines, in service since 1909, had lost much of their efficiency.

The filter plant itself has ample capacity to meet even the added industrial requirements of the city. Chief equipment in it comprises three chemical feeders, one chlorinator, an over-and-under baffled mixing chamber, an aerator, two small sedimentation tanks, four rapid sand fillers, and a clear well.

Preliminary Studies and Design

Seven possibilities presented themselves. Five of these were impounding reservoirs, the sixth was the use of the Kaskaskia River as a source, and the seventh was the use of ground water. Many interesting developments came to light as a result of this study. However, the engineering analysis disclosed that one water supply had definitely superior characteristics. This supply is identified as the Raccoon Creek Project and has a drainage area of some 48 ½ suare miles. It provides storage of 1,800 million gallons and has an estimated yield of 4.6 mgd.

Left: Driving the sheet steel piling cutoff wall, showing the method of driving the piling to prevent "fanning out" at the top. The piling was Carnegie-Illinois M112, 30.7 lbs. These are the same sections as used in the cut-off at the Fort Peck Dam in Montana. Right: A general view of the downstream side of the dam nearing completion. Note the rock used to protect the toll.

CENTRALIA SENTINEL PHOTOGRAPHS

Left: An illustration of progress on the piers for the radial gates. The outlet to the bypass conduit is hidden by the two piers under construction. The low pumping station may be seen in the background.

Right: Looking upstream at the 96-inch bypass conduit showing the side of the function chamber in the foreground. The 30-inch intake line was laid inside this conduit and the intake tower was built at the upstream end.

A dam was required slightly more than a quarter of a mile in length with a top width of 12 feet and a bottom width approximately 110 feet at its widest point. The downstream side of the dam is designed with a slope of 2:1 with the toe being protected by rock. The upstream side is designed in a "step" arrangement. The upper 12 feet have a slope of 5:2 and are protected by concrete slabs four inches thick. Below this, an 8-ft. berm is provided, and the balance of the slope is finished at 3:1 unprotected. The protected portion is the area where the water level is expected to fall most consistently, and the concrete acts as a guard against the damaging action of the waves. Steel sheet piling is utilized as the cut-off through the 28 feet of alluvial material in the valley bottom. The core of the dam is constructed from selected clay, and a clay puddle seals the top of the piling to the core.

Spillway Design

The large drainage area called for a spillway 166 feet wide. This is controlled by a series of nine prefabricated steel gates operated with a gasoline-powered hoist. The spillway has a maximum capacity of 19,500 cfs or 400 cfs per square mile of drainage area.

Since the spillway was constructed of concrete, the designers made particular efforts to eliminate as far as possible the use of steel, and the resulting sections showed some ingenious planning. Limited amounts of reinforcing were required in the piers between the spillway gates where the thrust of the gate produced stresses that could be handled in no other way. Stilling basin walls and spillway walls were designed as unreinforced gravity sections.

Raw Water Intakes

Interesting features developed in the design of the raw water intake lines. A 96-inch concrete pipe conduit passing through the dam serves the triple purpose of carrying the 30-inch raw water suction line, providing by-pass facilities for the creek during construction and serving as a vent for the reservoir. Three 24-inch circular sluice gates at different levels on the intake tower feed the intake line. Reservoir water level is to be recorded on a continuously recording water level gage installed in a cast-iron float tube, the register being placed in the low service pumping station building. Because of priorities, the installation of this equipment has been postponed.

The low service pumping station, located just downstream from the dam, provides pressure to transfer the water approximately 7,000 feet through a 24-inch cast-iron pipe to the filter plant. The line is carefully located on grades closely following the ground contours. Only one air relief valve and two blowout valves are required. The low service pumping units comprise two 2-mgd electrically driven pumps and one 3-mgd stand-by gasoline-powered unit. The pumping station is particularly designed against uplift in case of high backwater.

The old steam plant was completely replaced by a new high service pumping station located at the filter plant. Three electrically driven pumps and one stand-by gasoline-driven unit are included in the equipment in this station. Two of the electrical pumps are 2-mgd units, and one has a capacity of 3-mgd. The stand-by unit has the same capacity. The pumps discharge against a pressure of from 80 to 85 lbs. per sq. in. All flows are measured by a venturi meter on one of the discharge lines. The water level in the elevated tank located downstream is continuously recorded by a remote control register located in this station. The building itself is of modern fireproof design and contains locker facilities, a garage, and a machine shop.

The rehabilitation of the existing treatment plant included much-needed extensions to the sedimentation facilities, motor-driven mechanical flash mixers in two of the existing basins, six motor-driven mechanical coagulation machines in two new basins, one additional dry chemical feed machine, and two chlorinating machines. These chlorinators are capable of furnishing pre-chlorination and post-chlorination and can be utilized for break-point chlorinating operations.

Filter Sand Size Increased

The filter sand has been replaced with a larger sand of effective size. Originally it was thought that the existing sand could be restored by the sulphur dioxide treatment. However, it was too far gone to respond. Since replacement, the operators have obtained filter runs of 48 hours regularly, whereas previously they were able to obtain normal runs of only 11 to 14 hours. A new 300,000-gallon elevated steel storage tank was located near the center of town. This tank maintains service pressure, insures adequate water for fire fighting, and improves the service to the important Illinois Central shops.

Construction

The uncertainties of war came prominently to light when bids for the work were opened August 23, 1941. The attitude of the contractors was plainly reflected by the fact that only one bid was received on the pumping station and the filter plant additions, and no bids at all on the dam and reservoir. The city readvertised on September 6 and received three bids on the dam and reservoir but only one on the pumping stations and filter plant additions. Unit prices varied greatly. The contractors rightly anticipated high labor costs and low efficiencies. They were also uncertain as to the availability of the structural steel and the sheet piling. Less difficulty was experienced with the chlorinating equipment. This was furnished and installed according to schedule. However, several reserve replacement parts still remain to be delivered.

War-Induced Delays

Many factors worked against the smooth construction of this project. War-induced material shortages produced and are still producing obstacles preventing final completion. Coupled with this, excessive rainfalls delayed excavation for footings and pipe lines. However, by careful planning and resourceful methods, the contractor was able to overcome most of the difficulties.

Preliminary exploratory borings were as accurate as could be expected considering the type of material that was encountered. Differences in the elevation of the standstone forming the foundation for the stilling basin made it necessary to redesign the discharge floor. Large limestone boulders that were encountered were used for ripraping the downstream edge of the stilling basin.

In building the dam proper, material was taken both from the area excavated for the spillway and stilling basin, and also from a selected borrow pit. As stated previously, clay was used for the core, while a sandy material was suitable for the balance of the dam. Compaction tests were not conducted during the construction, but it was determined that very little water was necessary to obtain the desired density. The natural water content averaged about 12 to 16 per cent.

Financing

The project is being financed by the sale of water revenue bonds in the amount of $725,000. These bonds are to be retired over a 30-year period solely from revenues derived from the water system. A slight increase in water rates has been effected, but the price is still low for a city the size of Centralia.

Contract Data and Equipment Inventory for the Centralia, Ill., Improvement

The construction was separated into seven divisions as follows:

Furnishing 24-inch C. I. pipe—U. S. Pipe and Foundry, Burlington, N. J.

Installing C. I. pipe line—W. L. Hall, Atwood, Ill.

Dam, Spillway and Reservoir—R. B. Potashnick, Cape Girardeau, Mo.

Low Service Pumping Station—G. E. Tillman, Centralia, Ill.

High Service Pumping Station and Filter Plant Rehabilitation—G. E. Tillman, Centralia, Ill.

Furnishing Pumping Equipment—American Well Works, Aurora, Ill.

Furnishing Chlorinating Equipment—Wallace and Tiernan, Newark, N. J.

Major equipment was as follows:

Radial Spillway Gates—Leitelt Iron Works, Grand Rapids, Mich.

Sluice Gates—Chapman Valve Co., Indian Orchard, Mass.

Gate Vales—Rensselaer Valve Co., Troy, N. Y.

Chemical Feed Machines—Omega Machine Co., Kansas City, Mo.

Meters and Gages—Simplex Valve and Meter Co., Philadelphia, Pa.

Gasoline Engines—Climax Engineering Co., Clinton, Iowa

The management of the plant is under the direction of John W. Stedman, Commissioner of Water for the city of Centralia.

Meters, Management,
and Meeting Modern Wartime Problems

By B. E. Payne
Chief Engineer & Superintendent
Louisville Water Company
Louisville, Ky.

DEMANDS for water in Louisville have increased substantially because of the war. The amount required by industry alone has jumped a full 43 per cent, putting a heavy burden on certain parts of the distribution system not to mention the purification plant. The over-all demand of this city of more than 300,000 population has increased from 43.7 mgd to 48.3 mgd, or better than 10 per cent.

Back in 1936 Louisville, without realizing it, braced itself for war when it abandoned the wasteful practice of delivering water, unmetered, to consumers on a flat rate. During that year water consumption rose to the unprecedented high of 48.6 mgd. Metering so retarded this water waste that, even with the present wartime demands, we have not yet quite reached the 1936 peak.

However, being ready for the emergencies of war means more than just having plant facilities. One needs a smoothly operating organization, financially sound, with a foresighted policy. Fortunately these attributes may be found in this company. For many years the board has followed the sound practice of turning back earnings into property, keeping the plant up to date and efficient in all details.

Furthermore, when it first began to appear that our country might become involved in this war, the management made certain plans toward protection from sabotage and the assembling of repair parts and other materials to carry on during a national emergency. When war was declared the plant areas were immediately fenced, floodlighted, and patrolled by armed guards. The stocks of pipe and service materials were such that very little has been purchased to keep pace with the demand for defense housing construction or new services to war industries.

Maintenance and construction have been shaken up but not as badly as we had feared. We have had very little trouble in obtaining necessary supplies for essential maintenance and expansion. The P-46 Order and the other priority control orders, as they are now operating, work smoothly and distinctly aid in the conduct of our operations. We have made changes in our normal practices and are using certain substitute materials. As an example, lead and galvanized iron replace copper pipe for service connections. We also have altered our policy of connecting only one house per service to permit a saving of materials. Certain parts of our planned construction program, of course, have been deferred.

However, we cannot truthfully say that everything is smooth sailing for the company. At the present time the labor supply problem promises to be

serious. It has been affected both by army requirements and by the higher paid war industries in this area. Deferment may sometimes be obtained, but it means a well-prepared argument before a critical draft board, and at present we cannot legally "freeze" our men to their jobs, important as they are.

The Louisville Water Company obtains its supply from the Ohio River about 4½ miles upstream from the center of the city. From the original system of 1860, consisting of a pumping capacity of 12 mgd, a settling reservoir, 26 miles of mains, serving a population of 68,000, it has grown with the city to its present size.

The river pumping station has an installed capacity of 120 mgd in electric pumps with 110-mgd steam standby equipment. The electric units consist of one 60-mgd DeLaval centrifugal pump driven by a 2,500-hp Westinghouse synchronous motor and two DeLaval vertical centrifugal pumps driven by 1,250-hp Elliott motors. The steam units consist of one 16-mgd double expansion Leavitt crank and fly-wheel pump, one 24-mgd and one 30-mgd Allis-Chalmers triple expansion crank and fly-wheel pump, and one 40-mgd DeLaval turbo-centrifugal pump.

Louisville's Water Co. a Municipal Corporation

Water service at Louisville is furnished under an interesting arrangement. The Louisville Water Company originally was organized as a private concern. During its early history the city purchased varying amounts of stock until it owned all outstandng shares in 1906. The Water Company operates like a private concern, its only connection to the city being through its Mayor. It is managed by a Board of Water Commissioners composed of four members, one appointed each year for a term of four years, and the Mayor of Louisville as an ex-officio member.

All excess earnings beyond the immediate needs of plant expansion are turned over to the sinking fund of the city as a dividend. During the year 1942 this dividend amounted to $1,160,000.

Five raw water transmission mains convey the output of the River Station to the Crescent Hill Reservoirs or settling basins. These settling basins have a capacity of 106 mg and have the dual functions of storage and mud removal by sedimentation.

From the settling basins the water flows by gravity to the coagulation basins where alum solution and sometimes carbon is added. These basins have a capacity of 12 mg, are equipped with Dorr flocculators, and are constructed in six compartments for cleaning purposes.

The Crescent Hill filter plant is the result of some of the original extensive experiments which were conducted in Louisville during the years 1896-97. The present units consist of twelve 3-mgd units built in 1914, eight 6-mgd units installed in 1927, six 6-mgd units installed in 1931, totalling in all 120 mgd at normal rating. Chlorine, ammonium sulphate, and lime are added to the effluent of these filters.

The effluent from these filters flows into a 25-million gallon covered clear well. This clear well, like the settling basins and the coagulation basins, is so arranged that it can be by-passed in the event of a breakdown or for cleaning purposes.

The Crescent Hill pumping station is located adjacent to this clear well; it was originally constructed in 1903 and since that time has delivered all the water consumed by the citizens of Louisville. The equipment at this station consists of three 24-mgd triple expansion Holly pumping engines, one 40-mgd De Laval turbo-centrifugal unit. This gives an installed capacity of 152 mgd or 112 mgd with the largest unit out of service. The boiler plant at this station consists of four Henry Vogt 500-hp units installed in 1928 and 1931, three of which are adequate for the delivery of 100-mgd continuous service.

The transmission system which starts at the pumping station venturi meters consists of 55 miles of cast-iron and concrete mains and supplies the 676 miles of steel and cast-iron distribution system. A 30-mg covered storage reservoir, located on a hill to the south of the city, has been particularly useful in smoothing out the peak demands on the pumps and maintaining a uniform pressure.

At the close of the year 1942, there were 82,248 services installed on the system, of which 74,483 were in use, supplying a population of some 375,000. All these "live" services are metered and the company is accounting for 80 per cent of the water delivered by the pumps.

Rates, Service, and Performance

of Municipal Waterworks Interconnections

THE interconnection of water systems between communities is proving to be a boon to those cities where such practices are in use, the International City Managers' Assn. reports. These mutual arrangements in many cases help smaller communities with inadequate or unreliable water supplies and other towns with heavy and usual war-induced supply loads.

The Association surveyed 25 of the larger cities. About half have agreements for definite periods while the remainder have contracts that run continuously. In many instances, one large city serves several smaller communities. New York; Detroit; Portland, Ore.; and Cleveland are examples. Rates that these cities charge nearby communities for water vary with the type of service. If pumping is necessary, the rate is much larger than is the case when gravity flow is adequate.

The rates that these communities charge each other for this interchange of water varies with the type of service that is required. If pumping is necessary, the rate is much higher than is the case when gravity flow is adequate.

New Jersey's program, not included in the I.C.M.A. survey, involves comprehensive aid for the seven northern counties of the state where a major portion of the population and industry is located. This program, under the direction of George S. Burgess, chairman of the State Water Policy Commission makes is possible to service about 80 per cent of the population during critical periods. Forty possible ways of interchanging water have been developed. Five Directors of Emergency Operations have been appointed to expedite the program and exercise control over interchange of water among the 33 independent supplying systems. These directors, serving in rotation one week in every five, are available day or night for emergencies, and arrangements have been made for municipalities to contact them directly. The directors are the water superintendents or chief engineers of the five largest systems that operate in the area.

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A centrifugal casting machine in one of our plants—drawn by Hugh Ferriss.

When you get the "green light" on your deferred plans for improvements and extensions you will find us ready to give you quick action on your orders for cast iron pipe and fittings. Batteries of Super-de Lavaud centrifugal casting machines in three plants—machines which have been largely devoted to the war effort for the past two years—are ready to go all-out to meet the accumulated needs of water supply, gas and sewerage systems throughout America. Our specialized fittings plant, and special castings foundries in other plants, are also ready and equipped as never before.

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Recreation in Small Communities

A Study of Sponsorship and Facilities of Leisure-Time Activities in 62 Towns and Villages

By J. Roy Leevy
Purdue University

WHO sponsors the organized recreation, and what facilities are provided for it, in small communities?

To answer this question for typical villages and little towns in Illinois and Indiana, 62 such communities, ranging in population from about 2,500 down to 250 inhabitants, were studied by the writer and eight assistants, most of whom were in universities at the time.

The accompanying table indicates that public schools and churches are sponsoring most of the recreational activities in the small rural community. This makes one wonder whether or not the schools are preventing other agencies from an active part or whether the schools probably should do even more than they are now doing. There were only 6 communities that employed a full-time physical education director for the schools for the entire year. The other 56 communities employed coaches or physical education directors for the length of the school term, which was from 8 months in 3 cases to 9 months in the rest of the schools. There were 5 communities that employed the band instructor, who was also the director of music in the public schools, to direct band concerts for the summer months. Part of these band directors' salaries for the summer months were paid by the local school board and the balance was paid by the local merchants club. In such a community the music director for the public schools usually devoted one evening or one-half day each week to the instruction of grade and high school pupils. Occasionally he gave private instruction in the playing of some kind of musical instrument to a pupil. His band usually was made up of grade-school and high-school pupils, and some adults, during the summer months.

Free movies, sponsored by merchants clubs, were carried on mainly during the summer months. The movie was shown in the open streets or in a park if the community had a park. The local merchants club usually employed a movie company which traveled from one small town to another in a trailer, carrying all the equipment needed for the movie. People in the local community and those people living in the open country for several miles around

Upper Left—*In Kentland, Ind., this excellent town park has many recreational facilities for children. Band concerts and family picnics are held in this small park.*

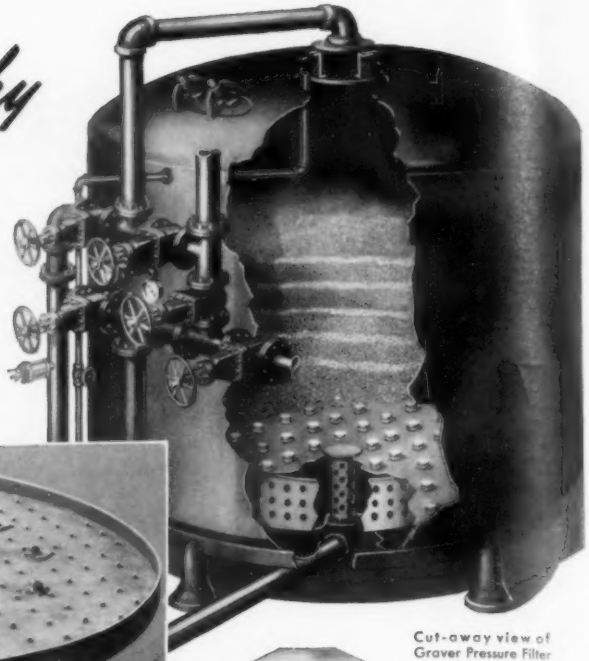
Lower Left—*Casey, Ill., has a layout that serves as a community center for youth in the summer. The school and the community cooperate in the recreation program.*

Upper Right—*The physical education teacher of the Homer, Ill., school supervises playground activities for children all summer. The swings are part of the permanent equipment.*

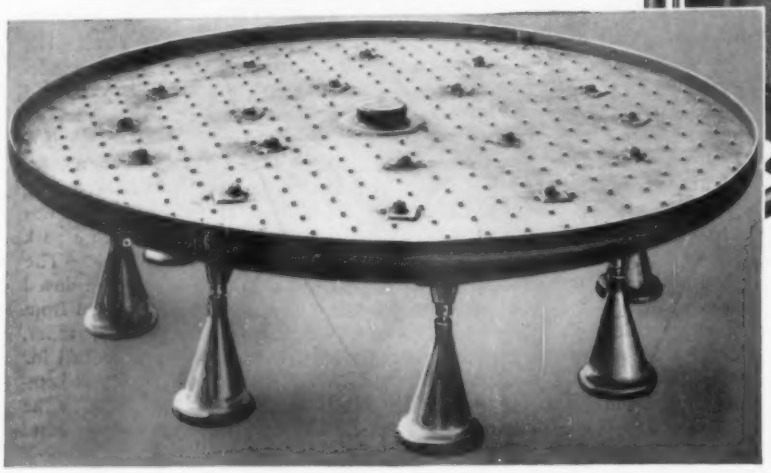
Lower Right—*The school and community of Bluffton, Ind., provide this fine layout of play facilities in a small town park that was once an unsightly place.*

Another reason why

GRAVER
PRESSURE FILTERS
insure highest filtration efficiency

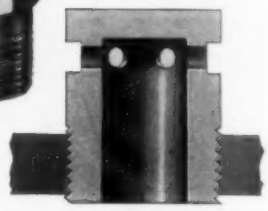


Cut-away view of Graver Pressure Filter



Above — Strainer plate and stainless steel strainers

Stainless steel strainers showing recessed orifice channel



THE FILTERING CAPACITY of a pressure filter is based on the horizontal cross-sectional area of the filter bed. Unless the underdrain system provides for even distribution over the entire area, the water will pass through only a portion of the bed and the filtering capacity will be materially reduced.

The strainer plate type of underdrain system as provided in all Graver Pressure Filters assures even distribution of incoming water and backwash water throughout the entire filter bed. This system is designed so that the use of strainers set on 6" centers distributes the water evenly. In addition, an expansion chamber below the bed assures an even amount of backwash water reaching each strainer. This permits proper backwashing and prevents clogging of the filter bed. It also acts as a collection chamber for filtered water during filtering operation.

Another important point is that all strainers used in Graver Pressure Filters are made of stainless steel. This type of material positively prevents closing of orifices due to corrosion. Also, the use of stainless steel strainers avoids electrolytic action between strainers and strainer plate.

The Graver type of underdrain system eliminates the need for any concrete grout or fill, therefore, no cracks—no stagnant water—no breeding places for bacteria.

Before you definitely decide on any type of equipment for filtration of water for any use, investigate the advantages offered by Graver equipment.

For further details on Graver Pressure Filters request Bulletin 313

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attended the free movie which was held once a week. The local merchants assessed each member of the club a free, pro-rating it according to the number of merchants or businessmen in the community. Merchants told the writer that the free movie brings to the town a great many farmers who trade with the merchants after the movie is over. Such an activity as the free movie may be termed recreational to the busy farmer and economic to the local small town merchant.

The recreational activities of churches, such as indoor games, consisted in the main of shuffle board, table tennis, horseshoe pitching, and various smaller games such as checkers, nine-pins, etc.

Some churches have not been very successful with outdoor sports such as softball and tennis. However, it largely depends upon the leadership of the local church. Musical activities such as choral clubs and orchestras were found in over 50 per cent of the communities.

AGENCY OR ORGANIZATION SPONSORING RECREATION

Name of Agency	Kinds of Activity	No. of Towns
Lions Club	Youth Tours	6
	Soft Ball	42
Merchants Clubs	Free Movies	52
	Band Concerts	18
Rotary Clubs	Boy Scout Tours	24
	Baseball	12
Private Owners	Pool Halls	36
	Movies	42
	Public Dances	22
	Bowling Alleys	21
Churches	Indoor Athletic Games	12
	Brotherhoods	31
	Soft Ball	19
	Musical clubs	32
	Social Gatherings	41
	Tennis	6
Schools	Athletics	62
	Musical Activities	41
	Drama	53
	Literary Contests	51
	Social Dances	31
	Youth Parties	56
Women's Clubs	Parties for Adults	42
	Library Units	9
	Adult Lectures	24
Lodges	Fish Fries	33
	Picnics	24
	Card Parties	16
	Drama	10
American Legion	Community Carnivals	14
	Oyster Suppers	21
	Christmas parties	18
W. P. A.	Indoor Games	7
	Sewing activities	3
P. T. A.	Carnivals	5

Community Organization Needed

The writer observed a definite need for a community-planned recreational program for small towns. He found churches complaining that the schools' athletic program conflicted with the church programs of recreation. Several ministers in small towns said the young people would not attend a meeting held at the church when the school had any kind of an activity going on at the same time. Some churches were handicapped when it came to space for holding a community meeting, and the pastors stated that they were not permitted use of any part of the public school building for such a meeting, even though in some communities the school did not happen to be using the school building upon the same evening as the church wanted to use it.

Among other criticisms were those from merchants who complained that the school and the church carry on recreational activities on their free-show nights. Lodges and civic groups complained that the schools fail to provide in most cases for any form of recreation for youth and adults during the summer months.

In some of the communities recreational facilities were found that had not been used for two or three years. This condition indicates further the need for some plan of community organization so that idle facilities will be put to use. There were nine communities which had one or more churches with either a softball diamond or a tennis court not in use. Likewise, bandstands in five communities were not used because there was no band leader for the summer.

The writer sees a definite need for a community committee representing the schools, the several churches, lodges, civic clubs, P.T.A., American Legion, and the private agencies. This committee could plan a program of activities and set up the community calendar of dates for events for all organizations of the community for a year-round program.

Suggestive Recreational Activities

1. Library services. The school library might function as the chief agency in some of the smaller rural communities; but in those above 1,000 population some sort of a public library should be established.

2. Creative art. Set up community workshops in addition to the general shop of the high school. Such shops in the school and in some public location would be open to youth and adults regardless of race, nationality, or creed. In such shops people could be permitted to learn the art of using tools. The school shops in the small towns now are too frequently locked to the general public. A small fee might be charged each participant for the use of materials and for the cost of maintenance of the shops.

3. Athletic activities. A program should be set up for athletic activities, both indoor and outdoor. Such activities need not be for youth only, but for adults as well. The program should include a full year-round program. It may be that most of the indoor activities may be held in the local school gymnasium. Some minor activities, such as ping-pong, shuffleboard, etc., might be carried on in the basement rooms of the churches. The athletic field of the school should be equipped for a number of outdoor sports and be made aavilable to out-of-school youth and adults as well as to youth in school.

4. Musical activities. Such activities—both instrumental and vocal—should be community-wide. Choral clubs should be formed, which should be permitted to render their programs in church and school auditoriums without any cost to the public and the performers. Local music groups from the nearby rural open country should be encouraged and permitted to render musical festivals in the school auditorium. Band concerts by community band members should be held weekly during the summer.

5. Occasional homecomings. Such forms of recreation should be more than merely "road carnivals." These occasions should consist of well-planned community programs when the people of the community could meet former friends and also enjoy good wholesome community music, drama, religion, etc., by the local community's talent. Exhibits of handicraft work, garden products, writings, and paintings could be shown, so that the people of the community could take stock every so often of its culture.

6. Movies. Some free movies which have been carefully selected for the youth of the community.

7. Social gatherings by church groups, lodges, and civic groups should be held occasionally during the year.

8. Privately owned agencies should be permitted to furnish well-planned and wholesome recreational activities.

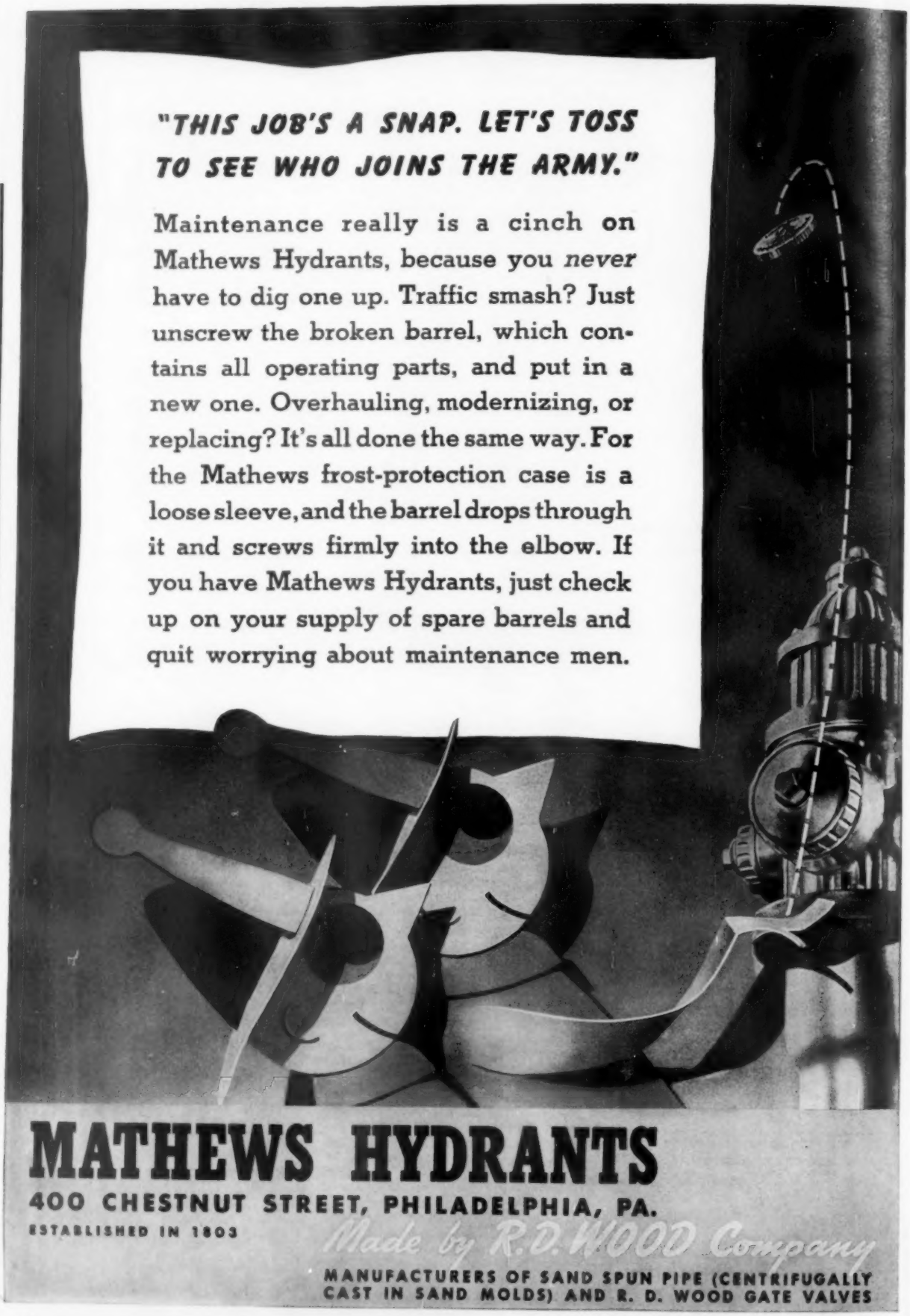
Such a procedure would no doubt avoid much of the dissatisfaction that now exists in reference to what agency has the right to use certain facilities for recreational events. It would also lead to a better plan or program for recreation even for those people who live in the open country adjacent to the small town. This would not only be a wise move to know our schools, churches, and other agencies better; it would be another way to analyze some of our small town needs as far as social life is concerned.

Rehabilitation Clinic

PROVIDENCE, R. I., is salvaging manpower from its relief rolls by finding jobs for persons who heretofore were considered "unemployable," by themselves as well as by possible employers.

The salvage plan, launched as an experiment, was placed on a permanent basis recently after $7 in relief costs were saved for every $1 the experiment cost, the American Public Welfare Association reports.

Purpose of the program, operated by the city in cooperation with the Rhode Island division of public assistance, is to determine the employment potentiality of an individual through tests, then give training if necessary, then, finally, to make an "intelligent" job placement with aid of the U. S. employment service.


"THIS JOB'S A SNAP. LET'S TOSS TO SEE WHO JOINS THE ARMY."
Maintenance really is a cinch on Mathews Hydrants, because you *never* have to dig one up. Traffic smash? Just unscrew the broken barrel, which contains all operating parts, and put in a new one. Overhauling, modernizing, or replacing? It's all done the same way. For the Mathews frost-protection case is a loose sleeve, and the barrel drops through it and screws firmly into the elbow. If you have Mathews Hydrants, just check up on your supply of spare barrels and quit worrying about maintenance men.
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Local Government Is News—28

*City Hall and the Civilian Defense Volunteer Office—6**
More about the Block Service Organization

By PHILLIPS BRADLEY

LAST month, the importance to City Hall of the newest aspect of CDVO, the Block Service Organization, was suggested—in terms of its potential as "neighborhood self-government in home-front war service." The U. S. Citizens Service Corps, paralleling the U. S. Citizens Defense Corps, offers City Halls right across the country a new opportunity to enlist community cooperation in all the varied activities of their Defense Councils to an extent hitherto impossible. Never before, except in the most thoroughly organized air raid and fire-auxiliary services, have so many neighborhood leaders been mobilized. Just as the defense services required adequate training in order to carry out their functions, so the new Citizens Service Corps should receive thorough instruction in the scope as well as the details of their duties.

City Hall and the Block Service Organization

Although the administration of civilian defense services is primarily the responsibility of the local CDVO or Defense Council, City Hall has a direct concern with the training of the new Citizens Service Corps. As its members—especially the Block Leaders—will be in touch with every home in the community more or less continuously, it is not unimportant that they interpret official policies and programs correctly. These new neighborhood and community liaison officers can, moreover, be of very real help to City Hall in developing sound civic awareness and cooperation about enforced wartime reductions of the public services. They can do much to increase community understanding of the who's, why's, and how's of local government—an asset to City Hall after as well as during the war.

As was suggested last month, a training program for the entire personnel of the Block Service Organization should include two elements. The first should be devoted to an orientation of all members of the Citizens Service Corps—what the Army and Navy call "indoctrination." The second should be related directly to the immediate activities which will devolve upon the members of the Corps in translating official policies and programs to their neighbors. Both types of training are indispensable if our wartime community organization is to function at maximum efficiency. The second without the first will only lead to indifference, if not, indeed, to active resistance on the part of the Block Leader's neighbors who will not appreciate his intentions behind a mask of hesitancy or brusqueness. If the policies and programs are to be converted into effective community action through neighborly cooperation, they must be "gotten across" without friction and with every possible stimulus to response. How, then, can a short orientation course be best organized to provide a common background for the varied and various members of the Citizens Service Corps?

The Essentials of Orientation

The essence of a sound orientation course for the rank and file of the Block Service Organization lies in developing positive and friendly face-to-face contacts. This is the bedrock on which the organization of the Citizens Service Corps rests; unless active cooperation is achieved between the Block Leader and his neighbors, there will be no real "service" through the organization. The bulk of the time in the orientation course should be devoted to this aspect of its members' functions.

A recent orientation course, designed for a large city (over 1,000,000) with a varied racial and religious population and communities varying from very low to very high income, provides for a single session of 1½ to 2 hours. It has been successfully used in all types of neighborhoods with groups including both homogeneous and widely mixed elements. Its content will be outlined here, for it has been sufficiently "standardized" to give it a fairly high degree of validity and reliability. With local variations to fit particular conditions, it may be found useful by other City Halls and CDVO's.

The first half-hour of the course is devoted to a description of the CDVO, from the OCD in Washington to the local branch office, and of the structure and operation of the Block Service Organization. The duties of the organization's personnel at the various levels, Branch, Sector, Zone, and Post, are briefly noted and the relations of the Block Leader to his superiors discussed as a problem in the efficient conduct of a volunteer service.

It will be of great help in this part of the course if printed or mimeographed charts of the various CDVO and Block Service Organization relationships are available for distribution. If not, a chalk talk with a blackboard will aid in giving a rough but accurate visual impression of the structure and operation of the overall agency, the CDVO, and its major service subsidiary, the Block Service Organization. The recruitment of a community-wide Citizens Service Corps involves the enrolment of hundreds or even thousands of new volunteers. It is essential, therefore, that they all have a common background of correct information about the functioning of the agency within which they are working.

An hour or more should be given to a discussion of the ways in which the Block Leader should approach his neighbors. This is the heart of any good orientation course. In the course noted above, about half an hour is allocated to an analysis of the question, "How should the Block Leader meet his neighbors—whom it is his duty to serve?" The reverse of the Block Leader's job, "What are some of the things he should not do?" receives equal attention.

A Neighborhood Clinic

During this part of the course, active discussion of the do's and the don'ts from the floor should be encouraged. Nothing interests a group of new volunteers so much as to hear at first hand some of the experiences of veterans, who have already been out on their

* For reference to earlier discussions of Civilian Defense activities, see THE AMERICAN CITY, March, 1943, p. 57. The March article deals especially with the Block Service Organization.

How much does a good pot-hole cost?

TINKERED and humored into lasting far beyond its time, this venerable cargo jalopy may not look important, but it is! It carries food enough for several hundred fighting men and workers — fo that may be delayed or lost by the wayside bece of a pot-hole in the road.

How much does a good pot-hole cost? " brother, plenty!" say men who know. E of trucks daily ply our highwa from farm to market and f plant, over the

R easingly

Tarvia and a right t nance

THE above is taken from a Barrett Tarvia advertisement in The Saturday Evening Post—a message telling American people of the vital war-time importance of road maintenance and repair.

Today millions of trucks ply our highways and back roads, from farm to market, and from mine and mill and plant. And many more millions of automobiles carry industrial workers to and from their jobs.

Roads that need repair can take an increasingly serious toll from this vital traffic. There's no calculating what they cost in excessive wear to tires and damage to cars, in accidents, delays and lost man-hours. Neglected pot-holes grow steadily bigger, steadily more dangerous and increasingly difficult to repair.

That is why it is so vitally important to concentrate upon *maintenance* in 1943. Highway engineers and officials are having to make limited appropriations and supplies work overtime. Why not discuss your problems with the Tarvia field man? He can help you make a little do the work of a lot. Remember; there's a right type of Tarvia and a right Tarvia method for the maintenance and repair of almost every type of road.

*Trade-mark Reg. U. S. Pat. Off.

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Barrett Tarvia*

oeat and who illustrate the problems in personal relations they have actually confronted. If a training meeting includes some of these veterans, they can usually be persuaded by the instructor to take part in a clinic on the best techniques to win friends and influence people. Even if they do no more than recount some of their own experiences, they will do more than the instructor possibly can by direct "teaching" to make the job of the Block Leader come alive. Once the ice is broken, there will be little difficulty in eliciting practical lessons on the best ways to meet one's neighbors—from those who have tried to do it. The clinic is, indeed, likely to last a good deal longer than an hour under its own momentum.

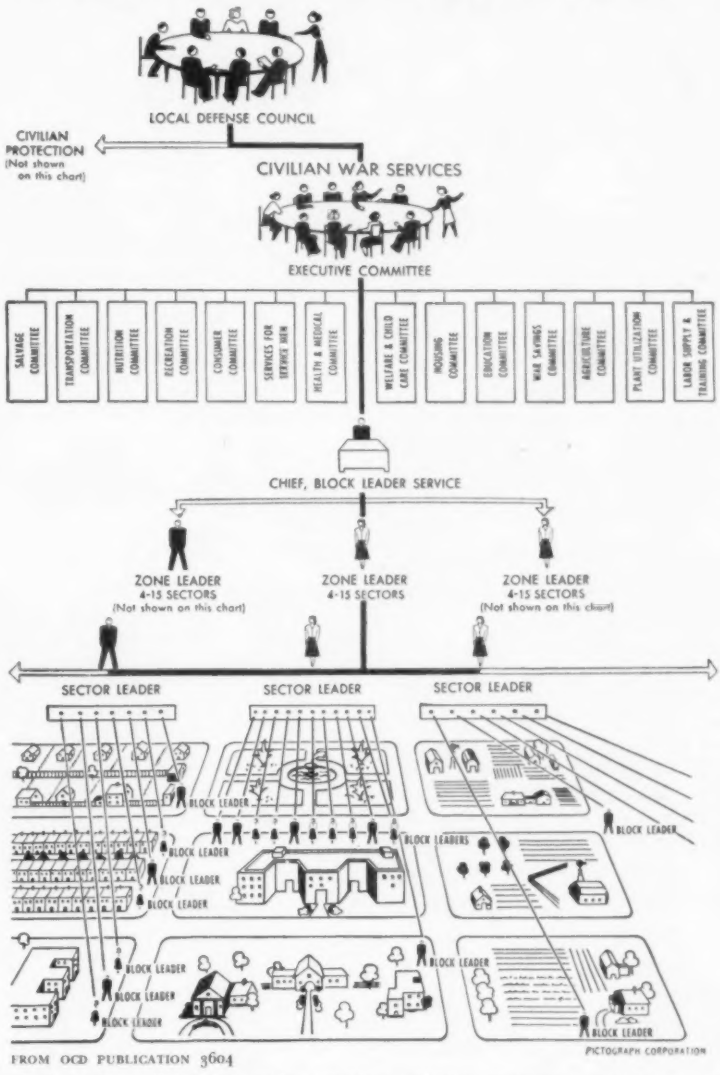
The Job of Reporting

Some time should be given to the job of reporting which Block Leaders must carry out. One of the most interesting results of developing an efficient Block Service Organization will almost inevitably be the range and character of the shrewd ideas for improving the home-front war programs which Block Leaders will receive from their neighbors. The Leaders should be on the alert to catch the "grousing" on how these programs are working in their neighborhoods and should be quick to catch ideas for making them more effective. Reports on this aspect of their job should always be anonymous; they should never report directly on their neighbors' comments. "Comparing notes" in Post meetings will often help in sifting out the causes of inefficiency and providing useful ideas—which may often be worth reporting up through the Organization, even to the OPA or the OCD in Washington.

Organizing a Training Program

In the smaller cities and towns, every effort should be made to carry the orientation training program down through all levels of the Block Service Organization. The Citizens Service Corps will function with the highest efficiency if every member has sat in on the course. In larger cities, it may not be possible to carry the training program down through every level. Two things can, however, be done to increase the over-all spread of the training. First, each branch of the CDVO or Defense Council should attempt to include members of the Block Service Organization from all levels in each training meeting. Thus, the experiences of each level will contribute to the effectiveness of the clinic discussions. Second, CDVO and the Block Service Organization itself should develop a unit of well-trained instructors available for orientation instruction classes. If adequately trained, this unit can be utilized to carry orientation training down to the lower levels as rapidly as recruitment develops. Thus, even in the largest and most diversified cities, a common program for Victory can be promoted through the Citizens Service Corps.

THE BLOCK PLAN FOR CIVILIAN WAR SERVICES



The Defense Council has two major functions—Civilian Protection and Civilian War Services. This chart shows the organization of the block plan for Civilian War Services. It does NOT show the organization for Civilian Protection.

City Manager Appointments

WALTER P. LEMKE, first selectman of Lisbon, Maine, has been appointed town manager of Lincoln, Maine. He succeeds RICHARD E. FLANDERS, who has resigned to enter military service.

CHARLES LARSEN, city manager from 1931 to 1939, has been reappointed city manager of Lakeland, Fla. He replaces H. P. FORD, who had served since January, 1941.

HARRY G. MCELWEE, a local businessman, has been appointed city manager of Paducah, Ky., to succeed J. P. SMITH

W. B. PITTS, has succeeded JOHN COLEMAN HARRIS as city manager of Tappahannock, Va.

D. B. WILLETT, who has been acting manager of Laramie, Wyo., has been appointed full manager.

CLARENCE E. RIDLEY,
Executive Director, International City Managers' Association.

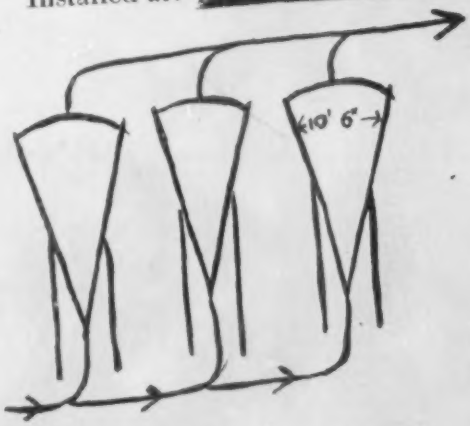
For complete list of city managers, see THE MUNICIPAL INDEX AND ATLAS, 1943.

SOFT, CLEAR WATER IN 8 MINUTES BY NEW SPACE-SAVING METHOD

FIELD REPORT

THE PERMUTIT COMPANY, NEW YORK, N. Y.

Equipment: "SPIRACTOR" COLD LIME WATER SOFTENER
Installed at: [redacted]



Note small area for daily capacity of 3,000,000 gallons!

This plant has more than met specifications. Detention time is only 8 minutes. There is no sludge. Softened effluent is so clear that filters have little to do. Engineer much pleased at fine results and simplicity. Simply turned on the water and the chemicals — no time wasted in getting started.

WATER ANALYSIS	RAW WATER	SPIRACTOR EFFLUENT#
Total Hardness	180	40
Calcium Hardness	172	32
Alkalinity A (Methyl Orange)	180	40
Alkalinity B (Phenolphthalein)	0	20
Free Carbon Dioxide	20	0

#Before filter

Write for free bulletin to The Permutit Co., Dept. G3, 330 West 42nd St., New York, N.Y. In Canada: Permutit Company of Canada, Ltd.... Montreal...Toronto...Winnipeg...Calgary

PERMUTIT

WATER CONDITIONING HEADQUARTERS

Analyzing the Design of Airport Runways

Should Highway Design Principles Be Used on Airport Runway Construction?

By C. K. STEPHENS
Airport Engineer
Michigan Board of Aeronautics

FROM observation, experience, and limited tests, the Michigan Board of Aeronautics has come to the conclusion that basic standards set for airport construction by various government agencies are too severe. Specifications for runway construction have been made analogous with those used in the road-building field, although we know there is a marked difference in the type and concentration of traffic.

Highway experience has indicated the necessity of sturdy and sometimes heroic subgrade treatment such as a 24-inch sand mat under pavements located on heavy soils. This meets the peculiarities of auto and truck travel, facilitating drainage, minimizing frost-heave, and so uniformly distributing traffic load.

Airport and Highway Traffic

It is an accepted fact that there is little or no relation between highway and airport traffic. In highway traffic the energy required for motion is entirely dissipated through the driving wheels into the roadbed. This process has a definite "pumping" action where concentration of traffic may reach hundreds of trips per hour and tends to draw an undesirable amount of moisture into the subbase. In aeroplane traffic, however, the motivating force is applied entirely through the pull of the propeller, with a much reduced resultant shock to the subbase.

We believe that the runway base will never reach the point of moisture saturation, provided that ordinary precautions are used in the construction. The most concentrated traffic we can foresee on a runway will probably not exceed 60 landings and take-offs per hour, and these would necessarily have to be of the light pleasure craft type. A concentration of more than 12 trips per hour of commercial ships is not anticipated on one runway, largely because of traffic control problems. Tests have proved the inability of expert pilots to duplicate the exact position of their landings on the runways more often than one per cent of the time even when "shooting" for spot landings. This indicates that there can be little or no repetition of traffic over the same area, the problem encountered in highway traffic.

Plane Speed and Runway Loading

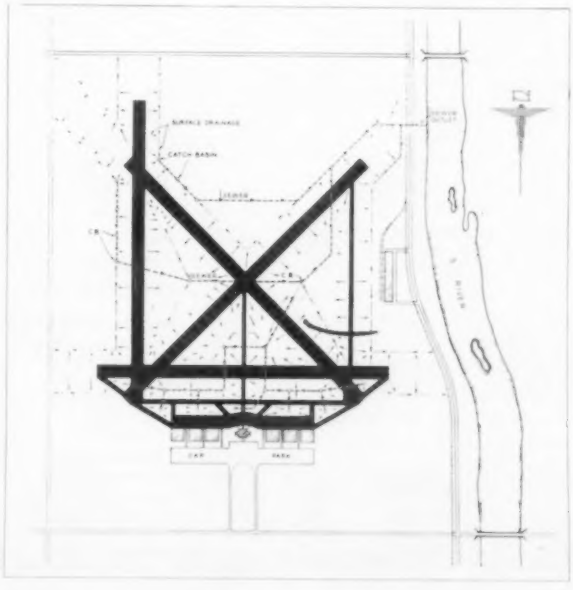
In all ordinary landings and take-offs the pressure of the plane on a runway decreases as the plane's speed increases, and increases as the plane loses speed. It has long been our belief that the greatest ordinary pressure applied by aeroplanes is the static load of the plane, and the most severe condition is in turning, when the plane pivots on one locked wheel. The resultant torque effect is the most concentrated load that can be applied to a runway, with the exception of a definite crash landing.

Drainage Studies

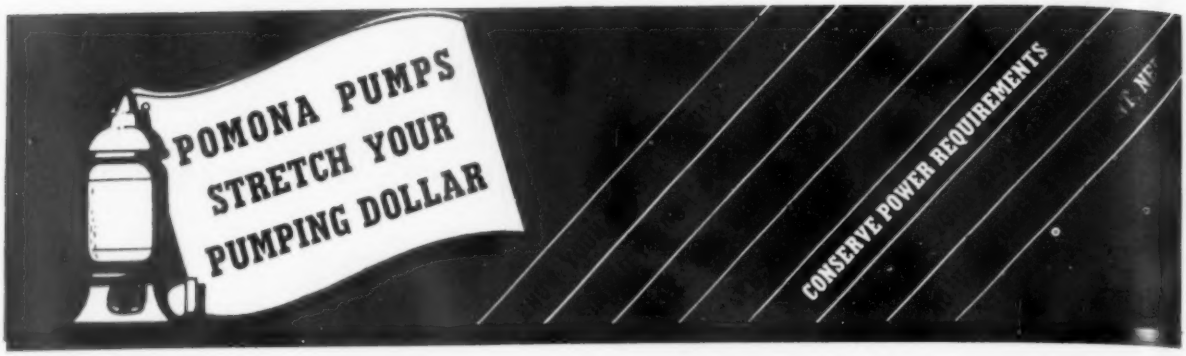
The prime prerequisite is for adequate drainage away from the runway. We believe that removal of surface water by adequate tranverse grades to concentration points remote from the runways, whence the water is carried away by sewers, is not only more economical, but also more successful than the use of elaborate subsurface drains adjacent to the runways where the grades are insufficient to carry away surface water.

Our practice has been to lay a well-compacted gravel base course six to eight inches thick with a relatively low-cost bituminous wearing surface. We have found that this will adequately meet the demands of practically all airports, regardless of the type of soil.

Tests made last spring on the Capital City Airport just after the frost went out of the ground indicated that the heavy clay soil was saturated only to the depth of the frost line which was about eight inches down. Beneath this, the soil was characteristically dry. Because of recent grading, there is a



A typical Class III airport with the drainage designed according to the principles advocated by Mr. Stephens.



NEVER BEFORE HAS POWER CONSERVATION BEEN SO IMPORTANT

Never before have Pomona advantages been so vital!

Pomona Pumps are singularly able to cut power requirements to a minimum because they embody basic engineering advantages found in no other pumps . . .

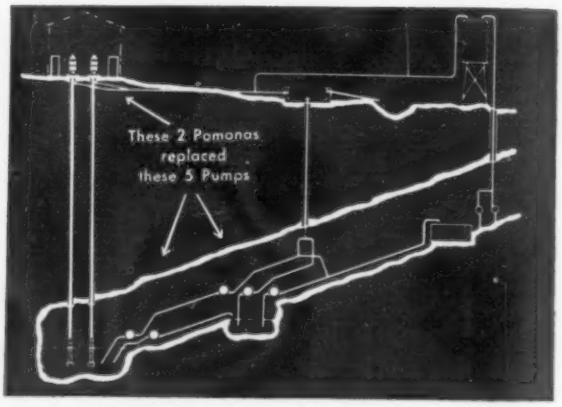
BULBOUS VANED BOWLS! This outstanding Pomona Pump development has lifted the already high Pomona efficiencies to a new peak . . . *in some cases above 90%* . . . reducing power requirements to a record low. The bulbous end shape smooths out fluid flow, minimizing turbulence, eddy currents and resultant skin friction. Result — more power goes into actual water pumping!

Bulbous vaned bowls are a recent Pomona advancement, and older Pomona Pumps can be re-bowled with this power-conserving feature. However, to save metals, get as much service as possible from your present bowl assemblies before having them changed for the new bulbous-vaned type!

ADJUSTMENT FOR CAPACITY! Here's another vital power-conserving feature that no other pump provides—ability to adjust the capacity to your exact needs *without wasteful throttling*. Unlike conventional pump impellers, Pomona's semi-open impellers can be raised or lowered on their seats to give the exact flow desired, *with proportionate savings in power*. And this adjustment can be quickly made *at the surface* with minimum effort. Raising the impeller gives more clearance between blades and seat—pumping less water and, at the same time, reducing the operating power required.

RESULT—power consumption is proportionate to amount of water pumped.

Contrast this with the valve-throttling necessary in other type pumps to adjust pump flow. Throttling increases the pressure the pump must work against—*increases the power required in proportion to flow.*



ONE POMONA CAN REPLACE SEVERAL PUMPS—Often a single Pomona Pump will do the job now requiring *several* other-type pumps . . . will do it *better*, with considerably *less* power. Typical is the Pomona installation diagrammed above where two Pomonas replaced FIVE horizontal pumps on a dewatering job. The Pomonas not only eliminated excessive piping and power cables, but did the job on 400 h.p., whereas the 5 pump arrangement had required 675 h.p.—67% *more!* Compare the power *costs*—$19,936 per year with the five-pump set-up . . . $10,750 per year—about HALF—with the Pomonas!

Call in your nearest Pomona representative and have him check over your pumping installation. Perhaps he can help you take fuller advantage of the *many* — and varied — savings incorporated in Pomona Pumps. You'll save power, save money, save maintenance . . . *and save resources vital to our war production!*

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PUMPS

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Present practice regarding the calculation of wheel loads is based on the assumption that the load is carried by the two main wheels with no load carried by the tail or tricycle wheel.

poor growth of turf on some areas, but within a week after the frost left, these areas could be opened for plane traffic without hazard. The use of subsurface drainage would have been of small value as the subsoil never was saturated. Part of the field, incidentally, had been a permanently flooded marsh.

Test holes bored through the runways at various sites indicated no excess moisture in either the gravel base or clay subbase. We examined one point in particular on the runway about 12 feet from the edge, where standing water had been trapped since last fall due to improper fine grading. Careful tests disclosed that there was no more moisture in the base here than at any other point. These runways had been constructed of a six-inch base of bank run gravel with a tar prime and single seal. A second seal was placed on the runways last fall. The total cost of the runways has not exceeded $.40 per square yard, including gravel base, prime, and double seal. This has been the fifth winter for the runways, and they are showing excellent service.

Same Safety at Less Cost

It appears that federal agencies have set up certain standards and specifications for runway construction which now preclude the use of that type of construction which the Michigan Department of Aeronautics has found to be most economical and serviceable. I refer specifically to the use of rigid base and wearing courses to the exclusion of flexible bases. Without doubt these standards have been established with a primary consideration for safety, which attitude is irreproachable. We sincerely concur in the desire for safety, but believe it can be obtained at much less cost. Airports are vital to municipalities, and it is a mistake to put them economically out of reach.

Wheel loading may be defined as "that static gross load carried by each main landing wheel of a plane," and is based on the assumption that the entire load is divided between the two main wheels, with no load carried on the tail or tricycle wheel. This is certainly a conservative assumption and one readily obtainable.

Unit Load Design Recommended

Unit load is "that load applied per unit of area," usually considered in pounds per square inch. Ordinarily the unit load would be the unit tire pressure plus a coefficient due to stiffness of tire sidewalls.

It is understood that although we may expect super-cargo planes in the future, with gross loads and wheel loads in proportions as yet unrecorded, the unit loads exerted by these planes are definitely limited. Variation in atmospheric pressure because of wide ranges of altitude is expected to limit the unit pressure to something less than eighty pounds at sea level. The increase in wheel loading will be absorbed in a manner that highway vehicles have met the identical problem —by using dual tires or dual axles. *Therefore, we should design a runway to withstand a certain maximum unit load.* We should not have to design to meet ever-changing requirements in gross loads.

Flexible Runways Preferred

We contend that a most logical, satisfactory, and economical solution can be obtained by the use of flexible or non-rigid base courses. There are marked variations in the distribution of loads in rigid and non-rigid pavements. In the non-rigid or flexible pavement the gross load is transferred to the base courses by a truncated cone of pressure and the unit load at the surface is dependent on area of contract and unit pressure. The rigid runway pavement also distribtues its load by a cone of influence, but in addition sets up other stresses as well. Its rigidity makes it subject to beam action and bending stresses as proven by Westergaard* in his tests on highway pavements. Thermal stresses also are introduced. It is readily admitted that many characteristics of properly designed concrete pavements are incomparable, but they are also high in unit cost.

Soil Studies Advocated

Recognized good practice indicates the necessity of a thorough investigation of soil types and their bearing values on any development of major importance. Meticulous treatment is given to assure the most suitable grades, adequate drainage, and optimum compaction of carefully chosen soils. As these factors are subject to a reasonable control, why should the rigid pavement be designed to take care of the worst combinations of poor drainage, saturated and unsuitable soil? It can only be because of the possibility of occasional "soft" spots in the subgrade where the latter conditions were not remedied. Our belief is that although the same conditions may arise in the construction of a flexible pavement, the failure of a small area would result in no hazard to traffic and could be readily repaired at insignificant cost.

Need for Airports Great

We point this out: in the crying need for more transport and military fields throughout the country at this time, we believe there is a pronounced tendency to "over-design" the runways with an ensuing expenditure of three or four times what a utilitarian project costs.

This has been written with a purpose not to criticize the Federal Government but to point out to local agencies that something less than the highest criteria is successful for ordinary commercial use.

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* Dr. H. M. Westergaard has published at least three papers relative to this subject—"Stresses in Concrete Pavements," *Public Roads*, Vol. 7, No. 2, April, 1926; "Analytical Tools for Judging Results of Structural Tests of Concrete Pavements," *Public Roads*, Vol. 14, No. 10, December, 1933; and "Stresses in Concrete Runways of Airports," presented at the December 1939 meeting of the Highway Research Board in Washington, D. C.

EDITOR'S NOTE—This article represents the conclusions of Mr. Stephens on airport runway design disclosing one of the ways that he feels will help put vitally needed airports within reach of more municipalities. THE AMERICAN CITY will welcome a discussion of the article by other officials having the responsibility of airport design, construction, or management.

NEW! The STAGGERULE

PULL FOR STAGGERED HOURS
See How Staggered Hours S-T-R-E-T-C-H Transit's Carrying Capacity
WATCH THE VEHICLE'S CAPACITY GROW AS RIDERS' HOURS ARE
STAGGERED
WATCH THE RUSH-HOUR CROWD GET SMALLER AS THEIR HOURS ARE
STAGGERED

to help you promote
CITY-WIDE STAGGERED HOURS

Civic leaders — city officials — use this novelty slide rule in your campaign to "sell" staggered hours. We'll give you a supply of them free, to distribute among the influential people in your community. Send for a sample.

THE dilemma of local transportation: Too many people must ride; not enough vehicles to carry them in the rush hours.

If your city is faced with this critical transit problem—and most cities are—the STAGGERULE shows how you can relieve the situation quickly. It demonstrates how, as more people go on staggered hours, the rush-hour crowds get smaller, and the street cars and buses can carry more people per day.

Use this "slide rule," too, for persuading your colleagues of the need for a CITY-WIDE PLAN of staggered hours. Reports show that, although many cities have already adopted half-way measures to achieve staggered hours, only a few cities have actually dovetailed the riding hours of the entire community under one central plan. Only if such a plan is in operation, affecting *all* the major riding groups in the city, can you expect to get maximum benefits from staggered hours.

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Another free promotional aid
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If there are still some important people in your community who dismiss *staggered hours* as a "crackpot notion"—maybe this 20-page booklet will help you change their minds. It shows how *staggered hours* offers the quickest relief for a transportation crisis that demands immediate, nationwide action.

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Please send me a free sample of
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☐ TRANSIT CRISIS, GES-3088

If I can use them in promoting staggered hours, I'll let you know how many I want. (*Reasonable quantities, of course—the supply is limited.*)

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9060

Traffic Control and Facilitation

Conducted by Traffic Control & Facilitation Committee, Institute of Traffic Engineers, 60 John St., New York

Merwyn A. Kraft, Chairman; Virden A. Rittgers, Vice-Chairman; David M. Baldwin, Martin E. Bruening, Stephen Butterfield, Edgar F. Copell, John E. Ecker, Fred W. Fisch, Emmett E. Kirwan, Foster M. Kunz, Alger F. Malo, Walter W. Matthews, John R. Moriarty, Henry W. Osborne, I. S. Shattuck, Matthew C. Stelski, Richard Siver, John L. Towers

Wartime Transit Operation

By R. F. Tyson

Vice-President—Operation, Philadelphia Transportation Co.

THOUSANDS of motorists who once regarded a trolley solely as a competitor in the race at the traffic light, now view the passing scene over the motorman's shoulder and fume at their erstwhile fellows who cut in sharply on the tracks ahead.

Last year the street-car, bus, subway, elevated, and trackless-trolley lines of America carried approximately 18,000,000,000 passengers. This is 4,000,000,000 more than the 1941 figure, and outstrips even the all-time high of 17,500,000,000 in 1926. Although no one can predict accurately the extent of the 1943 load, it is expected to increase to more than 20,000,000,000.

Plant expansion to keep pace with vastly increased traffic is obviously impossible. Even repair parts and maintenance materials are difficult to obtain. Transit operators must get the greatest possible mileage from each bus and trackless-trolley tire and make certain that every mile of tire wear is incurred only for war-essential transport. In competition with war industries, men—and women—must be found and trained to replace employees leaving daily for the armed forces.

The Problem

The Philadelphia Transportation Company, operating all the city's street-car, bus, subway, elevated, and trackless-trolley lines, carried 2,000,000 passengers a day before the war. Now we are carrying well in excess of 3,000,000 daily, and the number increases. This is an index of the large concentration of war production in this area, where more than 400,000 men and women are engaged directly in building ships, tanks, guns, planes, and other weapons of war.

Passenger increases on some of our lines serving shipyards and factories have ranged up to 600 per cent. Our 3,200 vehicles now cover 306,000 miles a day—82,000 more than in 1938.

Faced with the biggest job in history and handicapped by equipment and man-power shortages, the company has adopted numerous expedients to get maximum use of available vehicles and to conserve war-vital materials, particularly rubber. In embracing these expedients we have followed closely the wartime pattern for transit operators laid down by Joseph B. Eastman, Director of the Office of Defense Transportation. These emergency measures, plus the fortunate fact that financial reorganization of the company in January 1940 cleared the way for a $10,000,000 modernization program and the purchase of 733 new cars and buses, have made it possible to meet the demands of this war-busy city.

Old Equipment Reconditioned

Fortunately, also, the old cars and buses replaced by new equipment during 1940 and 1941 were not scrapped. More than 400 veterans were removed from storage, reconditioned, and sent back into service. Among these are old street-cars which first saw service during World War I.

Most of the job of putting these veterans back in shape is handled in our Kensington Shops, where street-cars and buses are regularly repaired and overhauled. Big as these shops are, the need for speed was so urgent that 54 trolleys are being reconditioned in shops heretofore used only for subway and elevated cars. This required towing the trolleys over the elevated tracks and through the subway, a sight heretofore unseen in Philadelphia. It has been reported that at least one late-at-night rider, waiting on a station platform for an elevated train and seeing a trolley go past, hurried home to sign the pledge.

As Director Eastman has emphasized repeatedly, staggered working hours can do more to relieve wartime transportation difficulties than any other single measure. Concentration of riding in four hours of the day—the morning and afternoon peaks—with many vehicles standing idle the rest of the time, presents an insurmountable problem. Staggered hours, which spread the peaks over longer periods and permit vehicles to make two round trips instead of one during rush hours, obviously had to be adopted.

A staggered-hours program, developed by the Philadelphia-Metropolitan War Transportation Committee, went into effect on September 8, 1942. The city's department stores and large specialty shops in the central business district moved their opening hour from 9:30 A.M. to 10 A.M. and the closing hour from 5:30 P.M. to 6 P.M. Offices in the central city area did likewise, opening and closing a half hour later than before. Industries also participated, with many war plants and shipyards starting day shifts a half hour earlier in the morning and dismissing them a half hour earlier in the afternoon. The result has been to separate, by an additional hour, the industrial and "white collar" peaks. This gives cars and buses sufficient time to make trips on routes serving war plants before carrying office and store employees.

The staggered-hour program has reduced the height of peaks on central city subway and street-car lines from 10 per cent to 15 per cent. Since no compulsion could be applied, the excellent results obtained are a tribute to the voluntary and patriotic cooperation of merchants, businessmen, city officials, labor leaders, employees, and shoppers.

The Future?

Any opinion as to the ability of public transportation to cope with the still heavier traffic of the future involves consideration of a number of unknown factors. We do not know how long the war will last. Nor do we know how much of the future supply of synthetic rubber can be allocated to tires for private automobiles. We cannot tell how many additional thousands of workers in war industries will call on us to transport them, nor how many of our trained employees Selective Service will call to the colors. And we do not know, at this moment, the number of new street-cars and buses which can be manufactured in 1943.

From service bulletin of Metropolitan Life Insurance Co., New York.

WITH remarkable speed the Pan American Airways is completing numerous new airports in Mexico, Central and South America and the West Indies. The forging of this vital chain of airways will have an important part in the conduct of the war. It will assist in smashing Axis strategy.

In the construction of these airports several million feet of cable were used for power, communication, boundary, runway, beacon, landing, flood and search lights. A substantial portion of this cable is HAZASHEATH, a tough, long-lived rubber compound, closely resembling a solid truck tire in its strength and wear-resisting features, and serves both as an insulation and protective covering. It resists moisture, chemicals, heat and rough handling. It eliminates the necessity for lead or other metal coverings and their common troubles such as induced sheath losses, electrolysis, corrosion, crystallization and the lack of flexibility. The rugged HAZASHEATH non-metallic sheath eliminates complicated fibrous coverings, or metal tapes which make splicing a tedious, time-consuming job, requiring expert workmanship.

Photographs courtesy Pan American Airways

HAZASHEATH, because of its high rubber content sheath, is not now available. After the war it will again be available and improved in many ways. In the meantime, and for projects associated with the prosecution of the war, we can supply other Hazard cables, protected with less critical materials, that for years have given meritorious service for airport and street lighting. Ask us for particulars.

The completion of these airports will add another chapter to aviation's history and the important part it is playing in this global war. And later these same airports will become stepping stones that form the post-war highways to commerce and communication between the good neighbors of the Americas.

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Salvage Your Scrap — Buy U. S. War Bonds

Parking Control on "War" Streets

By James E. Loer
Engineer, Henry B. Steeg and Associates, Indianapolis, Indiana

PARKING control on critical streets now has a different meaning than it did a few short months ago. We are involved in a great problem of war production and mass transportation. The rationing of automobile mileage has reduced the travel on most of our major thoroughfares to the point that they are no longer critical streets and require no additional parking control. However, there is a need now for parking control on streets leading to war industries in order to obtain the maximum capacity for moving vehicles and for reducing congestion, thereby assuring greater safety. There is a need also for parking control on streets over which the carriers for mass transportation operate.

Streets to Industries

Many war plants have been newly constructed and old industries have been enlarged in areas where there are no adequate thoroughfares. The cities and towns have not been able to construct new pavements nor improve old streets to take care of this traffic burden at these new locations. In some cases the Federal Government through state highway commissions has constructed access roads and streets to the war plants. But the government has limited the state highway commissions in the amount of money to be spent on these roads and streets, all of which in turn has affected the design. The design has been for the one purpose of facilitating the movement of vehicles.

At the present time, the established city streets cannot be reconstructed and widened to provide for a greater capacity of moving vehicles and for parked vehicles. Likewise, it is often not economical to provide for the parked vehicles by widening a street, particularly if additional right-of-way must be purchased. So there is but one conclusion. Streets must be cleared of all parked vehicles, in order to be used to capacity for the movement of vehicles.

The need for a street to carry a peak capacity usually occurs during relatively short periods at regular times during the day. The restriction on parking should be established by ordinance for those periods coinciding with the changing of shifts at the war plants. Should the streets being considered serve more than one industry and the time of changing shifts vary, as set up by the staggered-hour program, then the restriction on parking should be for a longer period as the volume of traffic may demand.

In other cases where the streets are narrow it is necessary to prohibit parking at all times on one side of the street and on the other side to prohibit parking for short periods at definite times during the day.

There are some streets wide enough to carry the peak load of traffic and also to provide for flat to-the-curb parking, which are made inadequate by the double parking of commercial vehicles during the periods of peak loads. Therefore, the parking of vehicles must yield to the more important stopping of commercial vehicles for the delivery of merchandise to business establishments. These restrictions should be established by ordinance in order that they may be properly enforced.

In the vicinity of some war plants, there has been the problem of forcing the workers to park in the off-street parking areas. This can be done by establishing a time limit on street parking, which is usually an hour, one and one-half hours, or two hours, as the condition warrants. The principal purpose of this is to eliminate the all-day parker. The area within one-quarter mile around a plant should be studied and adequate areas covered by the regulation, since the restriction on one street will merely force the all-day parker to the next street. These regulations are necessary in order that small business establishments may have parking space for their customers, the householder may have the use of the street in front of his home, and that at all times congestion may be reduced.

Mass Transportation Streets

Next, let us consider the streets over which the carriers for mass transportation operate. These streets are the street-car, trolley-coach and bus routes, and are most important since more people must use the mass-transport vehicles. Everything possible should be done to expedite the movement of these transport vehicles to encourage their usage.

Vehicles parked too close to street intersections or authorized stops prevent buses and trolley coaches from pulling to the curb to load or discharge passengers, thereby blocking the moving traffic by stopping in the traffic lane. A bus or trolley coach properly stopped at the curb affords greater safety for passengers and for the moving vehicles in the traffic lane.

Bus and trolley coach stops should be established and marked by appropriate signs. The minimum length for such stops should be 75 feet at street intersections and 100 feet for mid-block stops.

There are few streets over which street-cars are operated that are wide enough for the street-car lane, a lane for moving vehicles, and a space for parking. In Indianapolis parking has been prohibited during the hours of peak loads on several streets having car lines. These restrictions have definitely aided street-car operation and made the service more comfortable and rapid.

The two articles on this page are from papers presented at the recent Purdue University Road School.

Coordinating Automobiles, Walking, and Mass Riding

By James T. White, Traffic Engineer, Fort Wayne, Indiana

IT IS not my purpose here to develop the many intricate traffic-signal systems used throughout the nation for movement and regulation of vehicular and pedestrian traffic. Many of our large cities have installed signal systems which a few years ago were not deemed feasible, particularly from the standpoint of public expenditure, in order to bring about orderly movement of traffic and to meet the changing patterns of traffic flow. One of the more recent developments in traffic-signal timing is in Detroit, Mich. It is actuated by traffic through a given area. My intention is to discuss some of the more simple improvements of signal-timing accomplishments in Fort Wayne, Ind.

On Clinton Street (U. S. Routes 27 and 33) immediately south of the central business district of Fort Wayne,

GIVE THE ENGINE A BREAK!

WHATEVER type of "Caterpillar" Diesel equipment you operate, it's powered by a great engine. Thousands of veteran "Caterpillar" units are doing a heroic job in these trying times—carrying on with sturdy efficiency long after their ordinary life span.

It's the many *extra* qualities built into all "Caterpillar" Diesel Engines that are proving their worth today. They're simple, dependable, as nearly free from operating adjustments on the job as possible. But if you expect to get the utmost out of your engine, it's up to you to do *your* part.

FIRST OF ALL, YOU SHOULD READ THE INSTRUCTION BOOK AND RE-READ IT

Lubrication is important to engine life. Use the correct grade of oil, and be sure to change the oil and filters at proper intervals, as indicated by the hour-meter.

Don't forget to keep the fan belt properly adjusted.

See that the cooling system is tight, and put in enough anti-freeze to give positive protection in winter.

Keep the air-cleaner clean, and remember it needs more attention if dust conditions are bad.

Keep the clutch properly adjusted to avoid slippage, and don't overload the machine oftener than is absolutely necessary.

When repairs or special adjustments are needed, your "Caterpillar" dealer is ready day or night to help keep your engine working. He is equipped for every type of service.

He'll install new rings or recut piston ring grooves and put in wider rings if grooves are badly worn.

He'll etch cylinder liners, removing gum and glaze.

He'll replace bearings when they are worn, and he is equipped to recondition a worn crankshaft and fit it with new bearings, saving many pounds of war-needed metal.

Have him test your fuel injection system to see if it is functioning properly.

The "Caterpillar" dealer is the best friend your "Caterpillar" equipment has. Wartime conservation of power and materials is his job and he's doing it well. You can count on his sound advice and reliable service, now and at all times.

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TO WIN THE WAR: WORK—FIGHT—BUY WAR SAVINGS BONDS!

there had been installed three independent traffic signals. Their purpose was to prevent accidents and allow side-street traffic an occasional opportunity to cross this street which daily carries 7,000 cars per lane. A worse accident problem followed due to speed of 45 to 50 miles per hour.

Coordinated studies by the Traffic Engineering Department of the Indiana State Highway Commission and the city of Fort Wayne showed that it was possible to synchronize the three signals and operate them on a 40-second-cycle simultaneous system with a timing speed not exceeding 29 mph. The distance between these signals does not exceed 1,300 feet and cross-street traffic is negligible. After this change, accidents were reduced and the speed was controlled automatically by signal timing. This released the police traffic officer for service at trouble spots elsewhere in the city.

Recently the signal timing within the central business section has been changed, affecting 40 per cent of the city's signal system. Previously our signal system was paired in a two-block alternate arrangement and operated on a 70-second cycle. During peak traffic periods this system simply collapsed, and congestion was created to the point of actual standstill for two and three changes of a signal before clearing a single intersection. Delay studies revealed that motorists required from 8 to 15 minutes to travel 1,300 feet, whereas had the motorist been properly conducted through this district it should not have required more than two or three minutes.

Our plans now call for a straight single block alternate system with the cycle lengths varying throughout the day based on vehicle and pedestrian volumes.

Fewer Car Stops

We have given the city transit operation phase of our traffic problem close statistical study. When a tentative list of all stops had been prepared, transit company officials were called into conference with the traffic engineer to discuss the problem. It was necessary that the stops be mutually agreed upon from the standpoint of distance between stops, the use made of each stop, and compliance with standards as set by the ODT as to desirable distances between stops.

A meeting then was called involving the mayor, the entire board of safety, the chairman of the board of works, the chief of police, the captain in charge of traffic, the city traffic engineer, the local war traffic administrator, and officials of the transit system. After a discussion of the proposed plan of selective stops, this group was taken on an inspection trip over each major line, after which the stops that were to remain in service were agreed upon.

Plans had been formulated for preparing the public for the changes. Stops which were to remain were to be plainly identified in order to secure passenger acceptance of the plan. Each stop remaining in service was marked with a ¼-inch hard-finish Masonite sign, 16 inches square. The background of the sign is white, with a large red "V" processed thereon and over it the words "War Emergency Stop" in blue.

Not only were the "selective stops" identified, but each eliminated stop was posted with a cardboard sign, 12 x 18 inches, stating: "No Stop Here Due to U. S. War Policy." These signs were intended to remain in service only during the transition period until the public became accustomed to the change in location of stops.

Few complaints were received by either the city or the transit company. The management of the Indiana Service Corp. attributes this to the following three factors:

1. The public was prepared for the move by newspaper and other publicity prior to the changeover.
2. Choice of each stop could be substantiated with actual riding data.
3. The large signs made it possible for any passenger to see the place to which he should go to board his vehicle from any corner at which a stop had been eliminated.

The following table is a summary of the numbers of stops before and after the change, the percentage of elimination, the average distance between stops in both instances, and the effect on each type of service.

CHANGES IN STOP LOCATION, FORT WAYNE TRANSIT LINES

Type of Service	Number of Stops			Per Cent Elimi-nated	Distance Between Stops in Feet	
	Original	Retained	Eliminated		Original	After Change
Trolley Coach	285	172	113	40	459	760
Motor Bus	80	43	37	46	406	755
Street Car	373	210	163	44	400	711
System (Entire)	738	425	313	42	423	735

Eight Entertaining Traffic Safety Films

By Lyne S. Metcalfe

EIGHT ten-minute sound-motion traffic-safety films have recently been made available to schools and city officials to teach children street carefulness and to train the drivers of municipal vehicles in watchfulness of others. These pictures do not depend on horror to get their messages across. Each is complete in itself, and together they provide a series fitting the various requirements of any town or village. These are the titles and themes:

On Two Wheels—Here is a juvenile traffic court hearing cases and sentencing violators of the safety bicycle riding code. By learning to ride their bicycles safely, youngsters are mastering the rules of highway safety.

Safety Patrol—In showing the work of the boy safety patrols, nine rules for pedestrian safety are portrayed.

Seeing Green—In this picture we look inside a traffic light to see how it works and learn how important traffic signals are to safety every hour everywhere.

When You Know—Just as much must be learned and applied before a man can fly a plane, so every driver must know his car for safety to himself and others.

A Turnabout Man—The importance

of courtesy in safe driving.

Short Stops—This is all about brakes, with the act of braking shown in detail.

With Care—How a courteous considerate truck driver contributes to the safety of the highway.

Knights of the Highway—An interstate truck driver shows the principles of safest night driving. The six leading rules for driving after dark are portrayed.

The films are in possession of The Jam Handy Organization, Detroit, Mich., producers and distributors of war training films for the Navy. While they are suited to schools and juveniles, they equally inform adult audiences.

The Plans You Make Today May "Make" Your Town Tomorrow

You're busy.

Half the office force has gone to war—and priorities have you tied hand and foot.

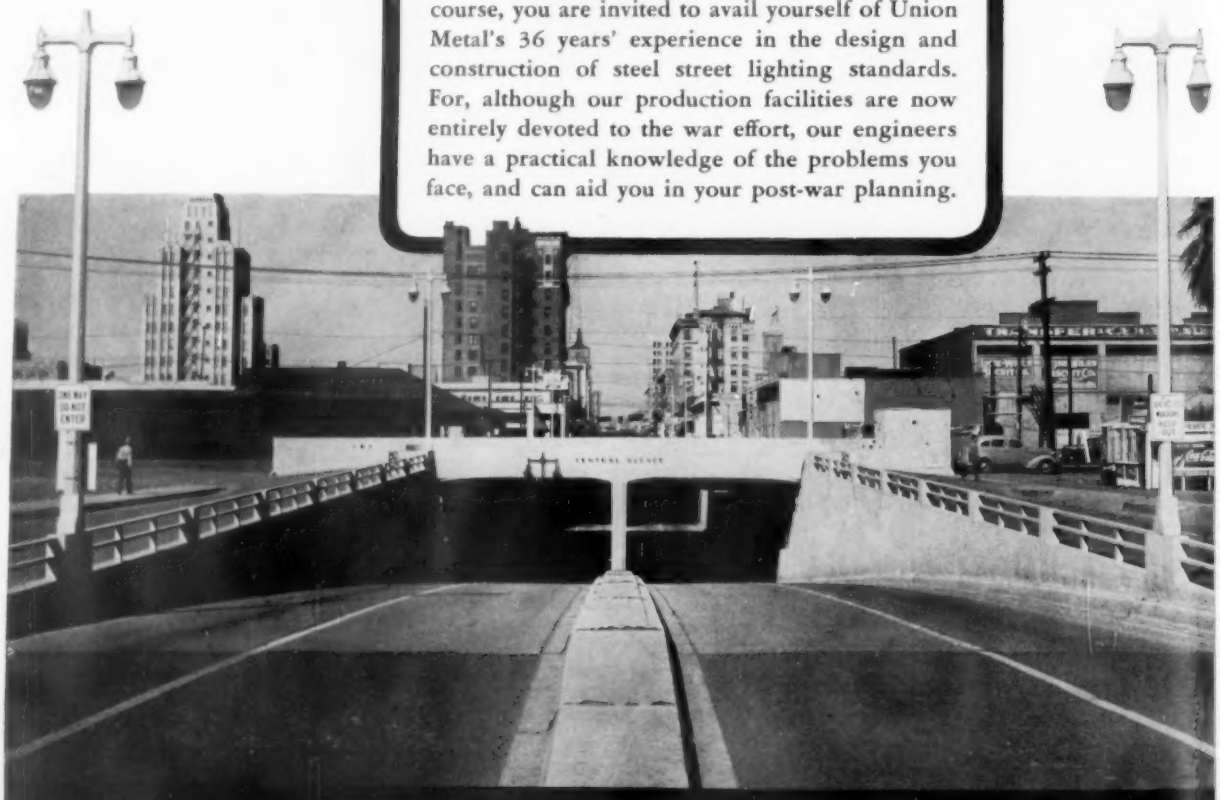
We couldn't sell you standards for a new installation today no matter how badly you wanted them. But—

There are no priorities on *future* modernization. And it only takes one man to develop a plan for civic improvement that will set the standards for *all* communities. Why shouldn't you be that man?

You might begin *right now* by surveying the current needs of your town and then adding possible future requirements—keeping in mind the rights of your citizens to safety and security after dark. Next, acquaint yourself with the latest discoveries and developments in street and highway lighting. After you have taken these steps, the formation of a comprehensive street lighting program, flexible enough to meet any reasonable needs of your town after the war, would be simple.

Should you decide to follow such a farsighted course, you are invited to avail yourself of Union Metal's 36 years' experience in the design and construction of steel street lighting standards. For, although our production facilities are now entirely devoted to the war effort, our engineers have a practical knowledge of the problems you face, and can aid you in your post-war planning.

UNION METAL



THE UNION METAL MANUFACTURING COMPANY
CANTON, OHIO

Outdoor Lighting

Streets—Highways—Floodlighting

War Standards for Protective Lighting

By CYRIL AINSWORTH*
Assistant Secretary
American Standards Association

MANY who have passed war plants and have noticed the extensive illumination which surrounds them may not have realized how extensive are the technical considerations which have gone into the installation of such a lighting system.

The greatly increased demand for effective protective lighting immediately has pointed to the need for specifications to outline satisfactory requirements for a protective lighting system. To meet this need, the Insurance Committee for the Protection of American Industrial Plants asked the American Standards Association to undertake the development of specifications.

Principles of Protective Lighting

The ASA committee first proceeded to determine just what protective lighting was designed to accomplish, and what principles should be followed in the writing of the specifications. Its findings can best be illustrated by quoting directly from the standard:

"'Protective' lighting is a wartime auxiliary to 'productive' lighting. It must combat darkness which crowds in from everywhere at night. Here it promotes safety and security from sabotage, and in this protective role light should reveal the saboteur while darkness should conceal the guard. Here glare, so undesirable in productive lighting, can be utilized in protective lighting to blind the trespasser and to obscure the guard.

Seeing in the Dark

"In the darkness outdoors, the problems of seeing are doubly important. The guard's eyes should be protected from brightness and glare so that they remain dark-adapted. In this state they can detect very low brightnesses and, therefore, movements. Good protective seeing is achieved by adequate light upon no-man's-land, glaring light in the eyes of the trespasser, and no light upon the guard; and in aiming to provide protective seeing, high brightness-contrast between trespasser and background should be a first consideration. This may be accomplished by adequate light and the proper use of paint."

Having established the objective of protective lighting, the committee then enumerated the following basic principles which may be applied to any protective lighting system as a measure of its efficiency:

(*a*) It should provide adequate illumination to discourage and detect attempts to enter a property, and to reveal unauthorized persons within the property.

(*b*) It should avoid glare that handicaps the guards or is a source of annoyance to street and highway traffic, marine or railroad operations, occupants of adjacent buildings, or workers on neighboring projects.

Glare directed at the intruder, if not in violation of the above, is effective in handicapping the seeing ability of the would-be saboteur and in preventing the discovery of the guard.

(*c*) It should illuminate shadowed areas caused by adjacent structures.

(*d*) It should coordinate the lighting with the guard stations or patrol routes to provide maximum concealment for the guard. Patrol roads and paths should be kept in relative darkness.

(*e*) It should avoid leaving areas dependent upon a single lamp or circumstances where the failure of one lamp, as for example in the boundary circuit, would create a dark passageway into the property.

(*f*) It should provide special treatment for such situations as railroad sidings, alleys, roofs of abutting buildings, wooded or water approaches, entrances and exits.

(*g*) It should be dependable in operation, and provision should be made for convenient control and maintenance. Suitable control is essential for purposes of blackout.

(*h*) Means of concealment such as bushes, tall grass, and weeds should wherever possible be removed from approaches to the property.

(*i*) Poles, lighting equipment, and electrical auxiliaries should be located inside the property fence or where they are not readily accessible to malicious damage.

(*j*) It is desirable to supplement the fixed lighting with searchlights controllable by the guards and permitting explorations outside the property or augmenting the fixed lighting within the property in the event of an emergency.

The committee has been careful to point out that in applying the provisions of the standard, the illumination levels recommended are the minimum levels believed to be necessary for policing properties, but that the levels are not necessarily adequate for efficiency from the standpoint of plant operations. For example, the lighting recommended as a protective measure for a stock pile is not necessarily sufficient illumination to permit of maximum efficiency or safety for workmen handling the material.

In Dimout Areas

The question that is most often asked by the persons interested in protective lighting is: "Does the standard cover protective lighting for industrial properties located in dimout areas?" This question was discussed at considerable length by the members of the committee who decided that inasmuch as the values specified in the standard were the minimum values that should be obtained and still provide protection from theft and sabotage, it was impossible for the committee to prepare any specifications for protective lighting of industrial properties located in dimout areas. It recommended that persons interested in protective lighting for properties in dimout areas should confer with those responsible for the administration of dimout and blackout regula-

* Acting chairman of the American War Committee on Protective Lighting of Industrial Properties.

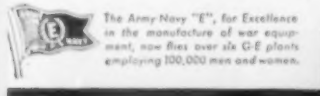
HELP YOUR CITY TO AID YOUR COUNTRY

For every person fatally injured in industry

7 skilled workers are killed on the highways.

60% OF THESE ACCIDENTS HAPPEN AT NIGHT

THESE are the statistics of recent years. What will tomorrow's records show? Industry is working 24 hours a day, 7 days a week, and many workers must travel between home and their work in the dark hours, often commuting from miles away. Roads that yesterday were mere byways today are highways, with peak-load congestion at shift hours. Cars are no longer merely for convenient transportation—they have become like plant-floor dollies, funneling the vitally needed war workers into the assembly lines of democracy-at-war. And every accident caused by lack of visibility—because it could be prevented—becomes a form of sabotage.



The Army-Navy "E", for Excellence in the manufacture of war equipment, now flies over six G-E plants employing 100,000 men and women.

WHAT YOU CAN DO ABOUT IT

1 Make an analysis of accidents and traffic flow to determine the zones in which night accidents habitually occur. For an accurate, comprehensive picture, spot these accident zones on a large map of the area involved.

2 Analyze this zone data to determine to what extent the accidents are caused by 3-shifts-a-day, war-plant traffic. If there is evidence of such relationship, your city should make sure—through adequate lighting—that these war plants will have swift, safe night transportation for war workers and war materials.

3 In re-planning your lighting system, there are three possibilities: (1) Equipment can be moved from relatively unimportant locations to the zones where lighting is most vital. (2) Your present system can be modernized. (3) You may install new equipment.

4 Prepare detailed plans for your proposed lighting improvements. The new IES code gives complete recommendations.

5 If it is necessary to purchase equipment, prepare a comprehensive report of your plans and their relation to the war effort—and submit it to WPB. With the proper priority, you will have little difficulty in obtaining the equipment you need.

For further information and help with your lighting program we suggest that you see the lighting specialist in the nearest G-E office. If your city is in a dim-out area, the G-E specialist (with his knowledge of special equipment and methods) can help you with your particular problems. *General Electric, Schenectady, N. Y.*

GENERAL ELECTRIC

454-21-3010

tions in the areas where the plants are located. In other words, dimout lighting and protective lighting are actually in conflict with one another, and industrial plants in dimout areas must be guided by the advice received from the properly constituted authorities.

Types of Boundaries

The specifications for protective lighting systems are divided into two main parts: the first pertains to boundary and approaches, and the second to areas and structures within property lines. Boundaries are in turn discussed according to whether or not they are fenced boundaries, unfenced boundaries, or whether the boundaries are formed by building faces. Boundaries formed by water fronts and the entrances through boundaries are also covered.

The extensive appendix to the standard discusses the types of lighting equipment most suitable. It describes the conditions and locations where particular types of lighting equipment can be used to the best advantage, types of circuits, and control methods. Typical methods of obtaining specified illumination values are outlined, with sketches. It is quite likely, however, that plants which have not already installed protective lighting may experience some difficulties in securing the necessary materials for use in constructing a new lighting system. The relation of the work of the plant to the war effort will undoubtedly have a definite bearing on this problem.

Are Dimouts Necessary?

The Navy, which should know, asserts that skyglow caused by moon, stars, and shore lights is a menace to American shipping by silhouetting ships and thus facilitating the aiming of enemy torpedoes.

There is very little information as to the extent that street lights contribute in various stages of moonlight to this dangerous skyglow. Last month it was pointed out here that nobody yet knows for sure whether or not street lights several miles from the waterfront contribute noticeably to skyglow. And it was added: "Where they do add to skyglow their contribution should be eliminated along with the rest of the artificial skyglow."

This question of the extent to which artificial skyglow contributes to the hazard of shipping is involved in a great deal of uncertainty. It is known that dimming of street lights in coastal regions results in accidents and fatalities. As to the reality of hazard to shipping traceable to skyglow from public lighting nothing is known.

"The Automobiles Are Coming," soon to be published here, foresees post-war traffic and makes suggestions.

Where, Why, and How to Light Streets Today

By E. B. KARNS
Lighting Engineer
Westinghouse Electric & Mfg. Co.
Cleveland, Ohio

MONEY cannot buy victory. Believe it or not, men and material are essential. We must keep production going full speed. We cannot afford a single man-hour loss of time from this program. Yet serious losses are incurred by time lost due to traffic injuries on the roads to and from work.

Although fewer pleasure cars are on the streets, truck and bus traffic has increased. Workers mingling with this traffic make total traffic heavier now than before. Add to this the facts that tires and brakes are wearing thin, and that aging automobiles are carrying pooled loads of five or six passengers.

These conditions must be corrected in streets leading to war plants by applying the following tested techniques:

(1) Roadway of sufficient width to handle the flow of traffic.

(2) Remove bottle necks and hazards.

(3) Provide at least 1,500-foot visibility distance.

Since many shifts of workers go to and from work after dark, safety must be provided at night as well as in the day. A system of adequate lighting must be installed where accidents are happening to war workers. The small amount of critical material involved is worth the use. The two diagrams show the principle of modern street lighting.

Each street or roadway presents its own problems and must be engineered accordingly on the basis of such facts as:

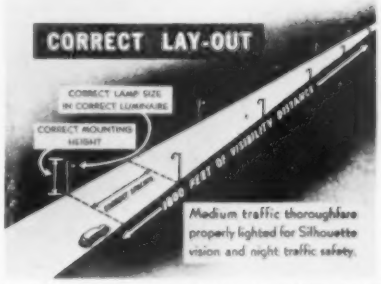
(1) Traffic flow, for classifying streets thus:

	Maximum Night Hour Traffic
Light traffic thoroughfares	150 — 500
Medium traffic thoroughfares	500 — 1,200
Heavy traffic thoroughfares	1,200 — 2,400
Extra heavy traffic thoroughfares	2,400 — 4,000

(2) Type of roadway surface, i.e., light or dark

(3) Width of roadway

After the street has been classified, the wide table may be used to find size


CORRECT LAY-OUT
CORRECT LAMP SIZE IN CORRECT LUMINAIRE
CORRECT MOUNTING HEIGHT
1000 FEET OR VISIBILITY DISTANCE
Medium traffic thoroughfare properly lighted for Silhouette vision and night traffic safety.

Since there are many shifts of workers going to and from work after dark, safety must be provided at night as well as in the day. Essentially, the only difference between day and night driving conditions is darkness. Therefore, a system of adequate lighting must be installed.

To obtain the best system of lighting, the light must be delivered to the roadway at such an angle that the reflected light will be at low angles in the plane of vision of the driver. Many old types of luminaires in present use direct the light as in the case of beam (A)—it strikes the pavement, is reflected skyward, and is lost for all practical purposes. The luminaire in a modern installation directs an adequate amount of light as in the case of beam (B)—the beam strikes the road surface at an angle which reflects it in the direction of the driver of the approaching automobile and the surface appears to him to be bright.

of lamp, spacing and arrangement of luminaires, and the approximate light required on the roadway.

Method of Installation—For appearance and permanence, ornamental concrete poles or tubular steel poles and underground wiring are most satisfactory. For purely utilitarian work, wood poles with pipe brackets and overhead wiring are used.

Series Circuit—For series circuit operation, usually the most economical means of power distribution, a constant-current regulator is required. This regulator should have a primary voltage rating suiting the distribution system to which it is to be connected. For primary control of the regulator an oil switch should be used. This switch may be either manually or time-clock controlled.

The **TECO** *Ring Connector spreads the load on a timber joint over practically the entire cross-section of the wood . . . brings the full structural strength of lumber into play.*

New Navy Blimp Hangar, 1000 feet long; 153 feet high; clear-span roof 237 feet. Timber treated for fire resistance according to Federal specifications. Trusses prefabricated by Timber Structures, Inc., Portland, Oregon.

OUR NAVY BUILDS WORLD'S GREATEST TIMBER STRUCTURE

mammoth blimp hangar was made possible by

TECO CONNECTOR ENGINEERING

Two announcements of the widest import to American engineering have just come out of Washington.

The U. S. Navy has announced that a giant blimp hangar, engineered entirely in timber, is nearing completion "somewhere in the continental United States."

The War Production Board has announced that "such a structure could not have been built of wood by ordinary methods without the use of timber connectors . . . The steel ring timber connector, which is used to increase the strength of joints in wood construction, saved more than 400,000 tons of steel for essential war production in 1942." WPB added that 2,050 tons of structural steel will be saved in this hangar alone.

In erecting this vast, multiple-truss assembly, Navy engineers have accomplished a notable achievement in modern timber connector engineering. The hangar is the latest of scores of large Navy, Army, and Maritime Commission projects built with Teco timber connectors under the revolutionary Teco system of timber engineering. It is one of over *100,000* heavy-duty structures, of *over 600* types, built under the Teco connector system in the past few years. They include clear-span factories, bridges and trestles, towers, tanks, warehouses, docks, shipyards, and many others.

Write today for our FREE Reference Book for engineers and architects showing 45 *"Typical Designs of Timber Structures."*

TIMBER ENGINEERING COMPANY

NATIONAL MANUFACTURERS OF **TECO** TIMBER CONNECTORS AND TOOLS

WASHINGTON, D. C. **PORTLAND, OREGON**

AVERAGE LUMENS PER SQUARE FOOT FOR CLASSES OF STREETS

Class of Road	Width of Street	Luminaire Type of Distribution	Lamp Size Lumens	Arrangement	Mtg. Ht.	Spacing	Av. Lumens Per Sq. Ft. Between Curbs
Light traffic	40′	C-Way	4,000	Staggered	25′	125′	0.33
Medium traffic	50′	C-Way	10,000	Staggered	25′	150′	0.60
Heavy traffic	60	C-Way or B-Way	10,000	Opposite	25′	150′	1.00
Extra heavy traffic	80′	B-Way	15,000	Opposite	25′	140′	1.20
Business streets	40′ — 60′	B-Way or A Way	6,000-25,000	Opposite	25′	100′	1.00 — 3.50

A-Way refractors give a larger and semi-circular spread on wide streets and where mounting heights are low.

B-Way refractors direct the light downward fore and aft along narrow streets and where mounting heights are high.

C-Way refractors are used at the side of the street on pendent luminaires to direct the light downward and outward onto the street.

In addition to the primary switch, protective devices should also be used. These are primary fuse cutouts, lightning arresters, and protective relay. The protective relay is installed in the secondary circuit, and if trouble develops on the secondary, the protective relay will kick out the primary oil switch and isolate the regulator.

Every town and city in a war production area should keep a separate record of accidents involving military personnel and war workers, and classify them as "daylight, dusk and dawn, and darkness." With this information action may be obtained where needed.

BILL OF MATERIALS FOR A TYPICAL MILE OF STREET LIGHTING

50-foot Street—Medium traffic, light concrete surface

Luminaire—C-Way distribution, 35 — 6,000-lumen series lamps

Mounting Height—25 feet spacing 150 feet staggered arrangement

Pole—36-Monotube steel or concrete standard

Regulator—Pole type, one 20-kw

Oil Switch—Remote controlled—one required

Time Switch—Automatic and astronomic—one required

Protective Relay—One

Primary Fuse Cutouts—Two

Lightning Arresters—Two

Underground Cable—11,000 feet No. 6, 2,500-volt

Pole and Bracket Cable—1,100 feet No. 6, 2,500-volt, 2-conductor

Lamps—36 — 10,000 - lumen 20 - amp. series lamps

Miscellaneous Material—Solder, tape, conduit, fittings, and connectors

Approx. Total Cost of Material per Mile—$5,000

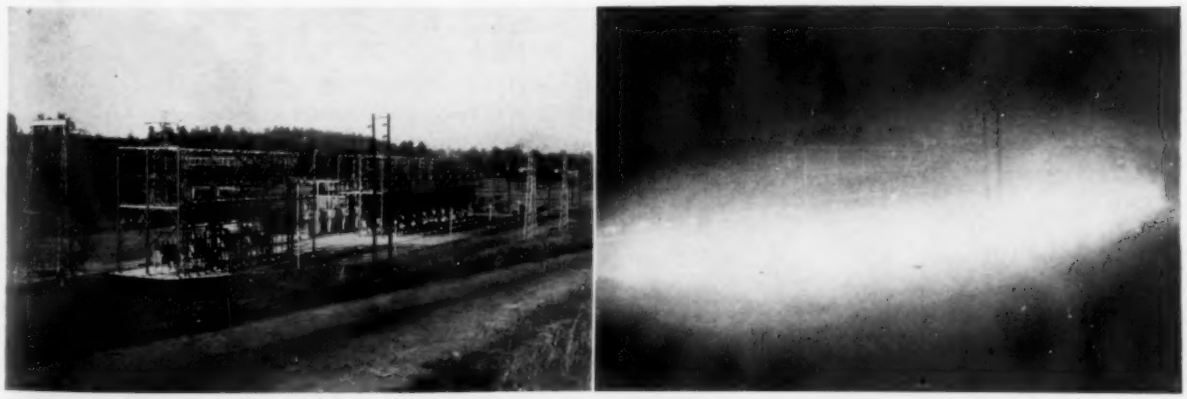
When wood poles and overhead wiring are used, the material cost will be approximately 30 per cent lower than the cost of the underground system.

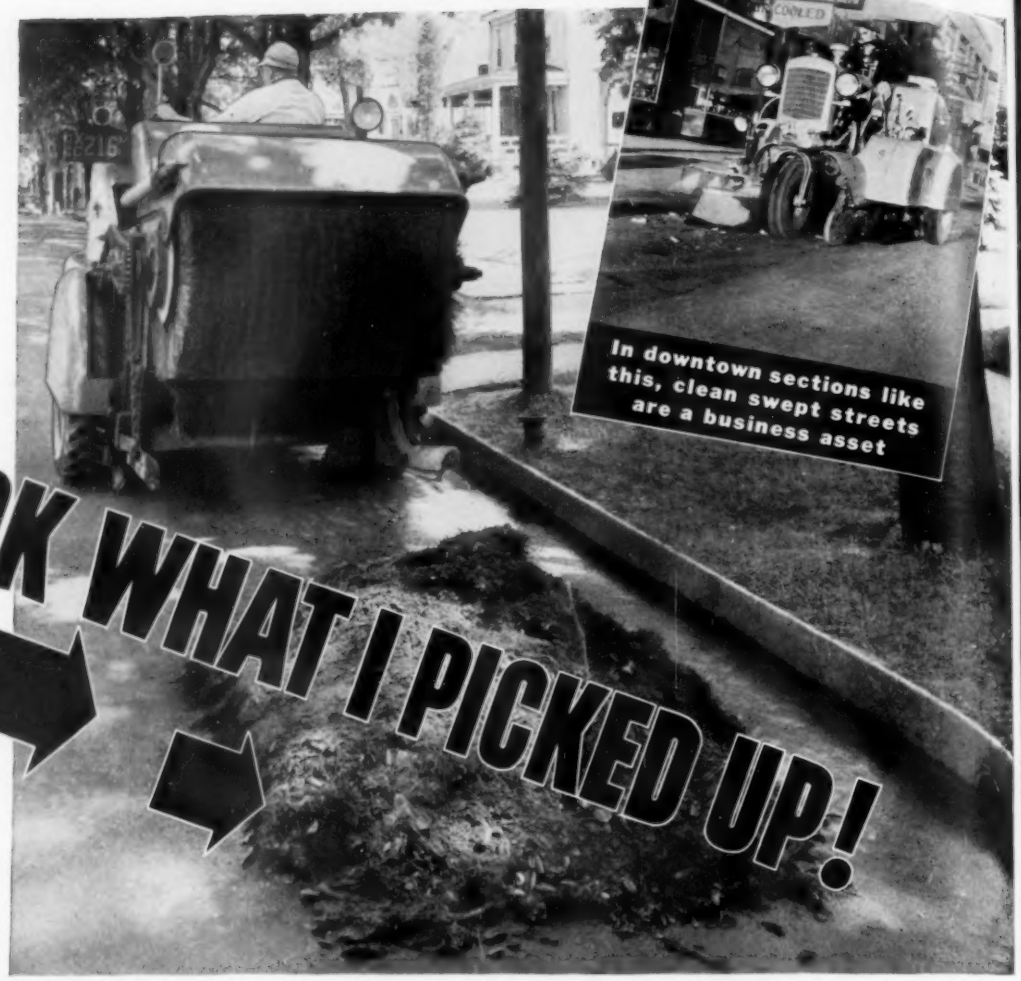
Protective Lighting with Bare Incandescents

IN smaller towns and at small plants, should deliveries of luminaires and copper wire be difficult to arrange, a simple system of protective lighting can be employed using incandescent lamps coated with a reflecting paint on the side toward the plant and bare toward the possible saboteur, with wiring consisting of horizontal barbed wires above the chain-link of the fence surrounding the plant. The top wire is set off by porcelain or glass insulators, the other wire being ground, and both are tied into the station's regular 110-volt service. This method is used, as illustrated here, by the Georgia Power Company at its substations. E. H. Wildberger, substation engineer, devised it when factory-built equipment could not be obtained.

Right: Substation Engineer E. H. Wildberger examining one of the 40-watt bulbs which are connected to the energized barbed wire at 20-foot intervals. Note how the inside half of the bulb has been painted with aluminum to obviate the use of metal reflectors.

Below: Here's how the Grady substation, Atlanta, looks in daylight and at night when the new fence lights are on. Note how the lights blot out everything but the top of the structure, concealing the building, transformers, and circuit breakers from prying eyes outside the fence. The operator or guard inside the property, however, can see well beyond the fence. At night, when the fence lights are on, all other lights are darkened except those essential to station operation.





LOOK WHAT I PICKED UP!

Dumped by effortless hydraulic power control, a compact load is quickly and easily deposited behind the Patrol Sweeper.

A SABOTEUR, IF THERE EVER WAS ONE—that won't get a chance to clog up sewers or to waste extra man hours in being scooped out. . . . The Patrol on this "beat" picked up everything—a mass of slippery, hazardous debris—mud, leaves, broken glass, twigs and stones. It was simply a routine task, like many others (over rough, smooth and uneven pavements) but it led to a big war-time assignment. Now, hundreds of Austin-Western Patrol Sweepers are serving the Army, Navy and Air Corps for the duration. THE AUSTIN-WESTERN ROAD MACHINERY CO., Aurora, Ill. Distributors in Principal Cities. Cable Address: AWCO, Aurora.

One of the first Austin-Western Patrol Sweepers purchased by the U. S. War Department.

★ ★ ★

***AUSTIN-WESTERN DISTRIBUTORS** will be glad to accommodate you whenever you require service or information concerning Patrol Sweepers, Power Graders, Road Rollers, Shovels, Cranes, Rock Crushing and Screening Plants and Kindred Equipment.*

BUILDERS OF ROAD MACHINERY SINCE 1859

Austin Western

Municipal Law Notes and Decisions

Prepared by NATIONAL INSTITUTE OF MUNICIPAL LAW OFFICERS, WASHINGTON, D. C.
CHARLES S. RHYNE, Executive Director

Beer—Prohibiting Sale on Sunday

An ordinance of the City of Ardmore prohibiting the sale of 3.2 beer on Sunday is invalid where the general statutes of the State expressly authorize the sale of such drinks. *Sparger* v. *Harris*, 131 Pac. (2d) 1011 (Okla. Dec. 8, 1942).

City Council—Change of a Decision Must Be by All Members Of

Where the City Council as a body had voted to convey property to a citizen who was to recondition it and expend not less than $50,000 for improvements, the Mayor and a part of the Council could not change this decision without the whole council's approval, so a deed containing less stringent conditions than those originally specified was void. *City of Lawrence* v. *Stratton*, 45 N. E. (2d) 460 (Mass. Dec. 2, 1942).

Contracts—Extra Compensation for Extra Work—Oral Agreement

A contractor who was employed to clean city water tanks and who then proceeded under an oral agreement to repair certain defects which his cleaning operations uncovered cannot recover for such extra work, as the city's oral agreement to pay therefor was void since no bids were asked and no contracts had been let for such extra work to the lowest bidder as required by state statutes. *Sioux Falls Taxpayers Assn.* v. *City of Sioux Falls*, 7 N. W. (2d) 186 (S. D. Dec. 17, 1942).

Fraternal Organization—Tax Exemption of Real Estate Concession

Where a fraternal organization rents a part of its premises on a permanent basis to a restaurant concession, the property is not entitled to exemption from taxation under New Jersey statutes. *City of Newark* v. *Nine-Sixteen Welfare Club of Newark*, 29 Atl. (2d) 405 (N. J. Bd. of Tax App. Dec. 22, 1942).

Handbill Containing Advertisement of Books Coupled with Invitation to Religious Gathering

On March 8, 1943, the Supreme Court of the United States, in the case of *Jamison* v. *Texas*, held that a City of Dallas, Texas, ordinance which is construed as forbidding distribution of a handbill containing an invitation to a religious gathering, when the invitation is coupled with an advertisement of two books explaining the religion of Jehovah's Witnesses, is invalid on the ground that it denies freedom of the press and religion in contravention of the First and Fourteenth Amendments of the Federal Constitution. A member of the so-called religious organization (Jehovah's Witnesses) had been convicted of violation of the ordinance by distributing a handbill containing an invitation to attend a gathering in a Dallas park. The other side of the handbill repeated the invitation and described two books with a statement that the books would be mailed "postage prepaid on your contribution of 25c." The Court finds this is not purely a commercial pamphlet as was the handbill in the case of *Valentine* v. *Chrestensen*, 316 U. S. 52, "because the handbill seeks in a lawful fashion to promote the raising of funds for religious purposes."

This opinion does not conflict with and does not overrule any of the prior decisions of the Supreme Court in the so-called handbill cases. These cases are collected in THE AMERICAN CITY *for May, 1942, on page* 101 *in the article entitled, "United States Supreme Court Upholds Commercial Handbill Prohibition."*

Hospitals—Admission to Staff of Public Institution

A public hospital rule permitting membership on the staff of the hospital only upon invitation after recommendation of an Executive Committee based upon observation of the applicant's qualifications does not violate the provisions of a statute giving all physicians equal privileges in treating patients in public hospitals, and since the rule is applied to all physicians alike it cannot be called discriminatory. *Selden* v. *City of Sterling*, 45 N. E. (2d) 329 (Ill. App. Sept. 17, 1942. Reh. Den. Dec. 23, 1942).

Liquor—Ordinance Must Follow Statute

A city of Des Plaines ordinance prohibiting the sale of liquor by persons dealing in foodstuffs or other merchandise was void as it did conflict with a state statute regulating liquor sales under which such a prohibition is not authorized. *Walgreen Co.* v. *Garland*, 45 N. E. (2d) 545 (Ill. App. Dec. 9, 1942).

Parks—Sidewalks—Unguarded Pit Near

A pedestrian who stepped off the edge of a sidewalk in a city park and slipped on a steep incline and fell into an unguarded pit which was 9 feet from the sidewalk is entitled to have a jury decide whether the city was negligent in failing to place a guard rail or provide a light warning of the pit. *Cox* v. *City of Des Moines*, 7 N. W. (2d) 32 (Iowa, Dec. 15, 1942).

Peddlers—Sale of Religious Books—Permit in Discretion of Mayor

On March 8, 1943, the Supreme Court of the United States in the case of *Largent* v. *Texas*, held that an ordinance of the City of Paris, Texas, prohibiting peddling without a permit from the Mayor is invalid as an interference with the freedom of speech and press guaranteed by the Fourteenth Amendment of the Federal Constitution. Permits were to be issued only if "the Mayor deemed it proper or advisable," thus allowing administrative censorship in direct contravention of the Supreme Court's decisions in such cases as *Lovell* v. *Griffin*, 303 U. S. 444, *Schneider* v. *State*, 308 U. S. 147, and *Cantwell* v. *Connecticut*, 310 U. S. 296. The ordinance was attacked by the so-called religious organization Jehovah's Witnesses.

It is, of course, evident that the occasion for this decision was the failure of the City to amend its ordinance to conform to the above decisions of the Supreme Court.

Sewers—Damages to Property in Construction Of

Where property owner suffered damages to his property in the City of Berwyn, caused by the construction of a sewer by an engineering and constructing company, acting under the Sanitary District of Chicago, the City of Berwyn was not liable for damages, but the Sanitary District and the construction company were. *Euwema Co.* v. *McKay Engineering & Construction Co.*, 45 N. E. (2d) 555 (Ill. App. Dec. 21, 1942).

Street Improvements—Attack Barred by Time Limit

A statute barring all legal attacks on a street improvement ordinance if objections are not filed within 30 days after publication of the ordinance bars a property owner's claim of invalidity as an answer to a suit to condemn his property to satisfy assessments for the street improvements. *Laflin* v. *Board of Com'rs. of Mena*, 166 S. W. (2d) 653 (Ark. Dec. 21, 1943).

Taxes—Assessment of Real Estate at Fair Market Value

A city assessor may consider reproduction value less depreciation as tending to show the market value of real property and improvements thereon unless the market value is established by a sale of the particular property or by sales of similar property. *State ex rel. Hennessey* v. *City of Milwaukee*, 6 N. W. (2d) 718 (Wis. Dec. 8, 1942).

Taxes—Excess Levy—Invalidity Must Be Proved

A city of Chicago tax levy for the maintenance of a library which was far in excess of the amount needed is still valid as there was no proof as to what excess money was used for and the burden of proving invalidity was upon the plaintiff taxpayer. *People ex rel. Toman, County Collector* v. *Signode Steel Strapping Co.*, 44 N. E. (2d) 555 (Ill. Sept. 21, 1942).

Taxes—Not Collectable Against Federally-Owned Land

A housing corporation is not liable for taxes against property it had acquired from the Shipping Board, an agency of the United States as such Federal Agency could not be taxed under New Jersey statutes. *Borough of Brooklawn* v. *Brooklawn Housing Corporation*, 28 Atl. (2d) 199 (N. J. Ct. of Er. and App. Sept. 18, 1942).

Tax Liens—Federal Superiority Over City

A Federal estate tax lien, although unrecorded, is superior to a city lien for real estate taxes even though state statutes purport to give the city lien priority over all other claims. *State of Michigan* v. *United States*, 63 Sup. Ct. 302 (U. S. Sup. Ct. Jan. 4, 1943).

Water—Rights of Landowners

A contract with an irrigation company granting certain landowners permanent rights for irrigation purposes cannot be violated by a city which purchases the irrigation company's property. *City of Wichita Falls* v. *Bruner*, 165 S. W. (2d) 480 (Tex. Civ. App. Oct. 16, 1942).

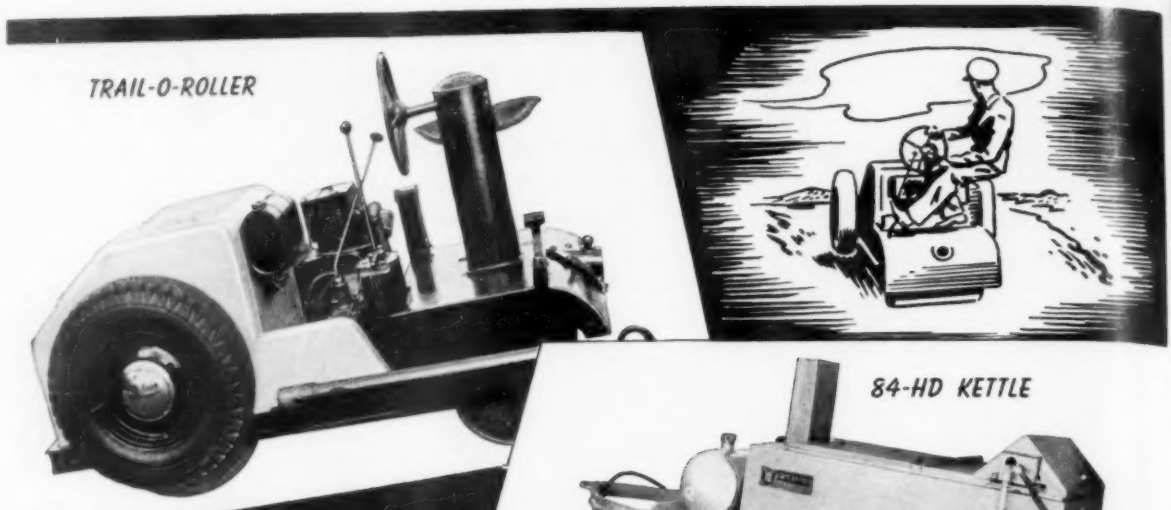
Workmen's Compensation—"Employee" Defined

A city electrician who was engaged in electric wiring and repair work for private persons when not working for the city, and who was electrocuted while working on an electric company's line was an "employee" of the electric company rather than the city at the time of his fatal injury. *Toronto* v. *City of Shakopee*, 6 N. W. (2d) 45 (Minn. Oct. 30, 1942).

Workmen's Compensation—Policeman—Injury on Way to Work

A city policeman returning from a leave of absence to the place from which he was required to resume his duties is not injured "in course of employment" when his automobile collided with a recklessly driven police automobile. *McKenzie* v. *City of Gastonia*, 22 S. E. (2d) 712 (N. C. Nov. 25, 1942).

TRAIL-O-ROLLER



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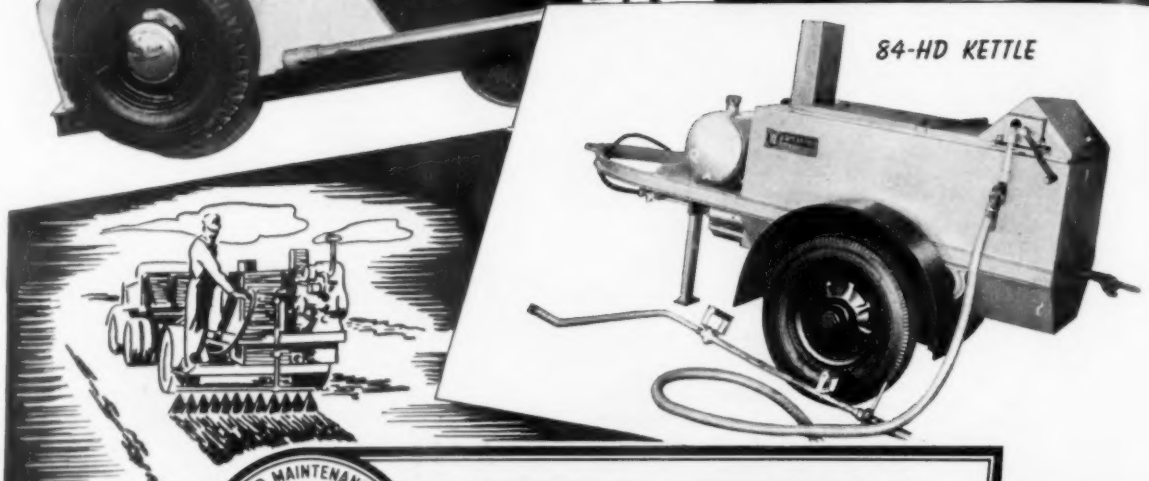
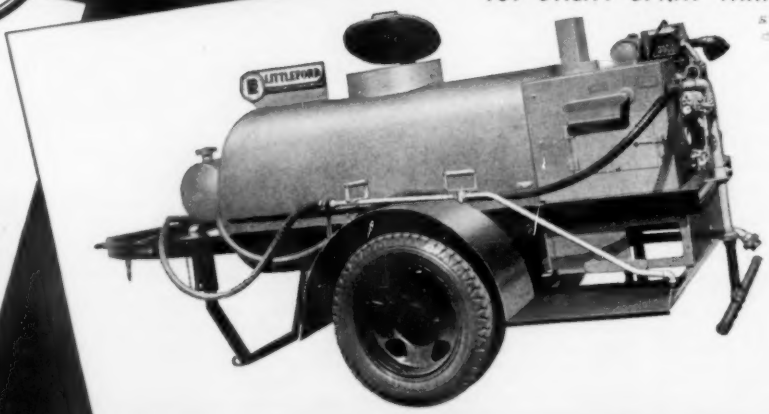


BLACK TOP ROAD MAINTENANCE EQUIPMENT SINCE - 1900

LB LITTLEFORD

101 UTILITY SPRAY TANK



TORCH TYPE OIL BURNER

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Prepared by
FRANK B. WILLIAMS
Author of "The Law of City Planning and Zoning"

Zoning and Planning Notes

With the cooperation of
EDWARD M. BASSETT
Author of "Zoning" and of "The Master Plan"

Residential District—Agriculture—Silo

MASSACHUSETTS.—*Moulton* v. *Building Inspector of Milton*, Supreme Court, September 10, 1942, reported in 43 N.E. (2d) 662.

The lot in question is in a residence zoning district in which no building shall be used for manufacturing or commercial purposes; but buildings for agricultural use selling only produce raised on the premises are permitted.

Harriet M. Manning has erected a silo on this lot. She and her husband are engaged in a dairy enterprise and have arrangements with property owners in various parts of Milton for the use of about 200 tracts of land, all in residence districts, for pasturing cattle and for growing fodder and vegetables. The fodder is fed to the cattle on their farm. Some of the vegetables are sold.

The silo was constructed by the Mannings because the two silos already built were inadequate to store the fodder needed. The erection and use of the silo are detrimental to the use of the lots owned by the plaintiff Moulton for residential purposes.

The exemption from the operation of the zoning ordinance of any "agricultural use, selling only produce raised on the premises" is complete and unconditional. It is not limited to agricultural uses that do not injure a residential neighborhood. Certain incidents to agricultural uses, such as the employment of fertilizers, are indubitably detrimental to such use. The test is whether the use is agricultural, not whether it is detrimental.

If the selling on the farm of some vegetables raised elsewhere is material, it was protected as a use existing when the zoning ordinance went into effect; and the existence of the silo did not extend such use.

A silo is part of the ordinary equipment of farms. The scattering of the Manning holdings does not affect the issue, as they were all used as part of one enterprise. The silo was therefore permissible on the lot in question.

Fire Limits—Zoning Ordinance, Amendment

NEW YORK.—*Matter of Golden Gate Park Corporation, Inc.*, v. *Board of Standards and Appeals of the City of New York*, December 8, 1941, reported 263 App. Div. 52.

This is a proceeding to review a determination of the Board, which revoked a permit for the removal of a wooden structure to a new location. The permit was issued October 14. There is evidence that, before that date, $10,000 had been spent in filling and grading the new location.

Notice of a proposed change in the zoning of the locality, from business to residential use, was published October 6. On October 26, the Planning Commission gave its approval to the change. Under the New York City law the matter must then be referred to the Board of Estimate, the legislative body of the city, with power to act on such matters, and the change becomes effective on their favorable action upon it. In this case the Board of Estimate gave its approval, the change to become effective on November 17.

The Court holds that the revocation of the permit was proper, because the building was of wooden construction and was relocated within the fire limits; and also because of the amendment to the zoning ordinance.

Such changes may be effective retroactively, unless there have been substantial expenditures made, in reliance upon the permit, prior to the change. In this case, however, the $10,000 claimed to have been spent was for filling and grading the new site, and no necessary connection was shown between this work and its use for the building in question.

EDITOR'S NOTE.—The law may now be regarded as fairly well established as stated in this decision: See the Wisconsin case of *La Crosse Building Works, Inc.*, v. *City of La Crosse* in these Notes for January 1941, and the New York case of *Matter of Ruetiger* in Notes for August 1942, with its note.

Residence Districts—Philanthropic or Eleemosynary Institutions

NEW YORK.—*Westchester County Society for the Prevention of Cruelty to Animals* v. *Mengel*, Sup. Ct., Westchester County, July 3, 1942, reported 36 N. Y. S. (2d) 531.

At the time of the application for a building permit, the zoning ordinance in question permitted philanthropic or eleemosynary institutions in residence districts. This society is such an institution. The contention that this provision was intended to be limited to institutions for human beings is not supported by anything in the ordinance and is untenable.

The subsequent amendment of the ordinance was ineffective if the Society had in the meantime erected its building under a valid permit; for the Society would thus have obtained a vested right.

It is claimed, however, that the permit was procured by misrepresentation and fraud, in which case no vested right would be acquired.

This proceeding was therefore referred to a referee solely for the purpose of taking proof on this fact.

EDITOR'S NOTE.—See, to the same effect, the Iowa case of *Crow* v. *Board of Adjustment of Iowa City*, in our Notes for March, 1940.

Zoning Ordinance—Variance—Private Restrictions

OKLAHOMA.—*Oklahoma City* v. *Harris*, Supreme Court, October 21, 1941, reported in 126 P. (2d) 988.

In this action one Manim is asking for a permit to erect an industrial building on a lot in a residential zoning district in Oklahoma City. The Board of Appeals found that, on account of the growth of business in the neighborhood of this lot a variance from the terms of the zoning ordinance should be granted Manim for such a building. In opposition to such a variance it was shown that the land in question was subject to private restrictions against business, which would be broken down by such a variance.

But the Board could not properly consider such restrictions, which can only be interpreted and enforced by a court of equity in an action for that purpose, and the decision of the Board was a proper one.

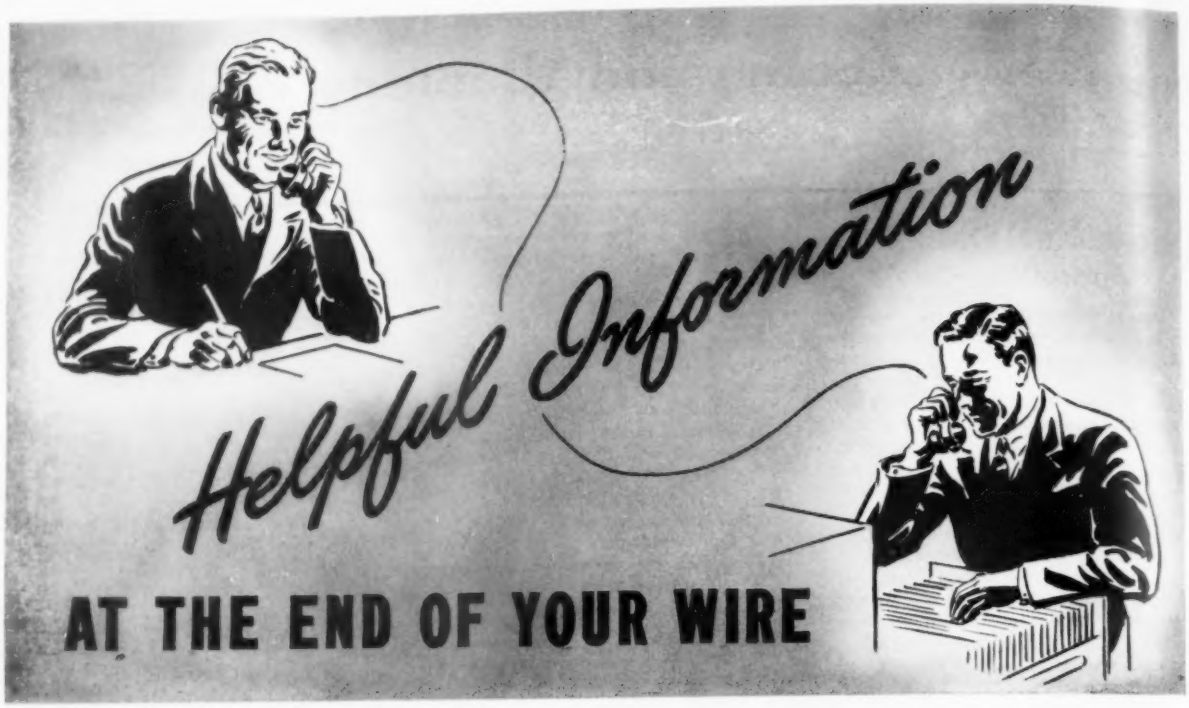
EDITOR'S NOTE.—This case is in accordance with well-settled law; see the Oklahoma case of *Magnolia Petroleum Co.* v. *Danver*, with note, in our Notes for January, 1939.

VERMONT SUPREME COURT REFUSES TO RECONSIDER ITS BILLBOARD DECISION

The February issue of THE AMERICAN CITY (p. 93) contained a note upon the important decision of the Supreme Court of Vermont—the highest court in the state—in the Vermont billboard case, *Kelbro, Inc.* v. *Myrick, Secretary of State, et al.*, handed down January 5, 1943. The March issue (p. 91) contained a note on the same case by Ruth I. Wilson, whose theory (*Georgetown Law Journal*, June 1942) concerning the limitations of the rights of outdoor advertisers and roadside owners under the legal principles governing easements over the highway which are inherent in abutting property was adopted by the Court as the basis of its decision.

On February 24 the Supreme Court of Vermont denied a motion made by the billboard company for reargument of the case and handed down a supplemental memorandum emphasizing several points in its original decision, among them the distinction between business signs which advertise business upon the premises and outdoor advertising generally, both as the source of different rights and also as the basis for a difference in restrictive regulations.

Both the original decision and the supplementary note may now be found in 30 Atlantic Reporter, 120 (2d) 527.



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Conventions—When and Where

April 16-17—Excelsior Springs, Mo.
Missouri Association of Public Utilities. Annual Meeting. (Elms Hotel) Asst. Sec., Jesse Blythe, 101 West High St., Jefferson City, Mo.

April 19-20—Little Rock, Ark.
Arkansas Water and Sewage Works Conference. Annual Conference. (Hotel Marion) Sec., Harrison Hale, University of Arkansas, Fayetteville, Ark.

April 26-28—Davenport, Iowa
American Society of Mechanical Engineers. Spring Meeting. (Hotel Blackhawk) Exec. Asst. Sec., Ernest Hartford, 29 W. 39th St., New York, N. Y.

***April 20-22—Ann Arbor, Mich.**
American Water Works Association—Michigan Section. (University of Michigan) Sec., M. N. Gerady, Water Board Bldg., Detroit, Mich.

April 29-30—Indianapolis, Ind.
American Water Works Association—Indiana Section. Annual Convention. (Hotel Antlers) Sec., H. G. Horstman, 504 Traction Terminal, Indianapolis Ind.

***May 3-7—Chicago, Ill.**
American Road Builders Association. Business Conference. (Edgewater Beach Hotel) Engr.-Dir., Charles M. Upham, 952 International Bldg., Washington, D. C.

***May 3-7—New York, N. Y.**
American Transit Association. Sectional Conference of Wartime Problems. (Hotel New Yorker) Gen. Sec., G. C. Hecker, 292 Madison Avenue, New York, N. Y.

May 7-8—Bellingham, Wash.
American Water Works Association—Pacific Northwest Section. (Hotel Leopold) Sec., Fred Merryfield, Engineering Laboratory, Oregon State College, Corvallis, Oregon.

***May 10-13—Richmond, Va.**
Building Officials' Conference of America. Annual Convention. (John Marshall Hotel) Sec.-Treas., Arthur N. Rutherford, Building Inspector, West Hartford, Conn.

May 10-13—Chicago, Ill.
National Fire Protection Association. Annual Meeting. (Palmer House) M'ng. Dir., Percy Bugbee, 60 Batterymarch St., Boston, Mass.

May 12-13—Atlanta, Ga.
Association of County Commissioners of Georgia. Annual Convention. (Ansley Hotel) Exec. Sec., Betty Peeler, 134 Peachtree St., N. W., Atlanta, Ga.

May 13-14—Wenatchee, Wash.
Association of Washington Cities. Annual Statewide Convention. (Hotel Cascadian) Exec. Sec., Chester Biesen, University of Washington, Seattle, Wash.

***May 13-14—Baltimore, Md.**
Maryland-Delaware Water and Sewerage Association. Wartime Conference. (Hotel Lord Baltimore) Sec., J. H. Schilpp, 2411 N. Charles St., Baltimore, Md.

May 14-15—Billings, Mont.
American Water Works Association—Montana Section. Annual Wartime Conference. (Hotel Northern) Sec.-Treas., Herbert B. Foote, Division of Water and Sewage, State Board of Health, Helena, Mont.

May 16-21—New York, N. Y.
American Institute of Planners. Combined meeting with American Society of Planning Officials. (Hotel Pennsylvania) Exec. Sec., Miss Barbara Terrett, 1313 E. 60th St., Chicago, Ill.

May 17-19—New York, N. Y.
American Society of Planning Officials. Annual Convention. (Hotel Pennsylvania) Dir., Walter H. Blucher, 1313 E. 60th St., Chicago, Ill.

***May 19-21—Chicago, Ill.**
American Transit Association. Sectional Conference of Wartime Problems. (Palmer House) Gen. Sec., G. C. Hecker, 292 Madison Avenue, New York, N. Y.

***May 19-21—New York**
National Association of Housing Officials. Annual Meeting. (Hotel Pennsylvania) Dir., Hugh R. Pomeroy, 1313 E. 60th St., Chicago, Ill.

May 21-25—Cleveland, Ohio
Community Chests and Councils, Inc. Annual Meeting. (Hotel Cleveland) Exec. Vice-Pres., Allen T. Burns, 155 East 44th St., New York.

***May 24-26—New York, N. Y.**
National Association of Purchasing Agents—Governmental Group. Wartime Conference. (Hotel Waldorf-Astoria) Sec., Joseph W. Nicholson, City Purchasing Agent, Milwaukee, Wis.

May 26-28—Cincinnati, Ohio
American Institute of Architects. Annual Meeting. (Hotel Netherlands-Plaza) Exec. Sec., E. C. Kemper, 1741 New York Ave., Washington, D. C.

May 27-28—Harrisburg, Pa.
Pennsylvania State Association of Township Commissioners. Annual Convention. (Hotel Penn-Harris) Sec. Treas., H. A. Fritschman, Upper Darby, Pa.

June 8-9—Harrisburg, Pa.
Pennsylvania Sewage Works Association. Annual conference jointly with Pennsylvania Water Works Operators Association. (Hotel Penn-Harris) Sec.-Treas., Bernard S. Bush, Kirby Health Center, Wilkes-Barre, Pa.

June 8-9—Harrisburg, Pa.
Pennsylvania Water Works Operators Association. Annual meeting jointly with Pennsylvania Sewage Works Association. (Hotel Penn-Harris) Sec., I. M. Glace, 22 South 22d St., Harrisburg, Pa.

June 8-11—Pittsburgh, Pa.
Smoke Prevention Association. Annual Meeting. (Hotel William Penn) Sec., Frank A. Chambers, 139 North Clark St., Chicago, Ill.

June 9-11—Albany, N. Y.
New York State Conference of Mayors and Other Municipal Officials. Annual Meeting. (Hotel Ten Eyck) Exec. Sec., William P. Capes, 6 Elk St., Albany, N. Y.

June 14-16—Los Angeles, Calif.
The American Society of Mechanical Engineers. Semi-Annual Meeting. (Hotel Biltmore) Exec. Asst. Sec., Ernest Hartford, 29 W. 39th St., New York, N. Y.

June 15-17—Pittsburgh, Pa.
Municipal Finance Officers' Association. (Hotel William Penn.) Exec. Sec., Carl H. Chatters, 1313 E. 60th St., Chicago, Ill.

June 15-18—Cleveland, Ohio
American Water Works Association. Conference on War Winning Water Works Operations. (Hotels Carter and Statler) Sec., Harry E. Jordan, 22 E. 40th St., New York.

June 21-23—Cleveland, Ohio
American Institute of Electrical Engineers. National Meeting. Sec., H. H. Henline, 33 W. 39th St., New York.

June 24-26—Baltimore, Md.
Eastern Association of Fire Chiefs. Annual Convention. (Lord Baltimore Hotel) Sec., Charles E. Clark, Box 217, Wayne, Pa.

***July 11-16—Dallas, Texas**
Southwestern Chamber of Commerce Institute. (Adolphus Hotel) Manager, Roger Miller, Chamber of Commerce Building, Dallas, Texas.

July 19-20—Harrisburg, Pa.
Pennsylvania Chiefs of Police Association. War Conference. (Hotel Penn-Harris) Sec., F. B. Titus, Lansdowne, Pa.

***July 25-31—Missoula, Mont.**
Rocky Mountain Institute for Commercial Organization Executives. (Montana State University) Manager, Donald Marcellus, 1445 Rand Tower, Minneapolis, Minn.

***July 27-29—Buffalo, N. Y.**
New York State Association of Chiefs of Police. (Hotel Statler) Sec.-Treas., R. W. Morris, P. O. Box 346, Geneva, N. Y.

***August 1-7—Atlanta, Ga.**
Southeastern Institute for Commercial Organization Executives. (Emory University) Manager, L. P. Dickie, Chamber of Commerce Building, Atlanta, Ga.

***Aug. 15-21—Evanston, Ill.**
National Institute for Commercial and Trade Organization Executives. Annual Session. (Northwestern University) Sec.-Treas., Clarence R. Miles, 832 First National Bank Bldg., Chicago, Ill.

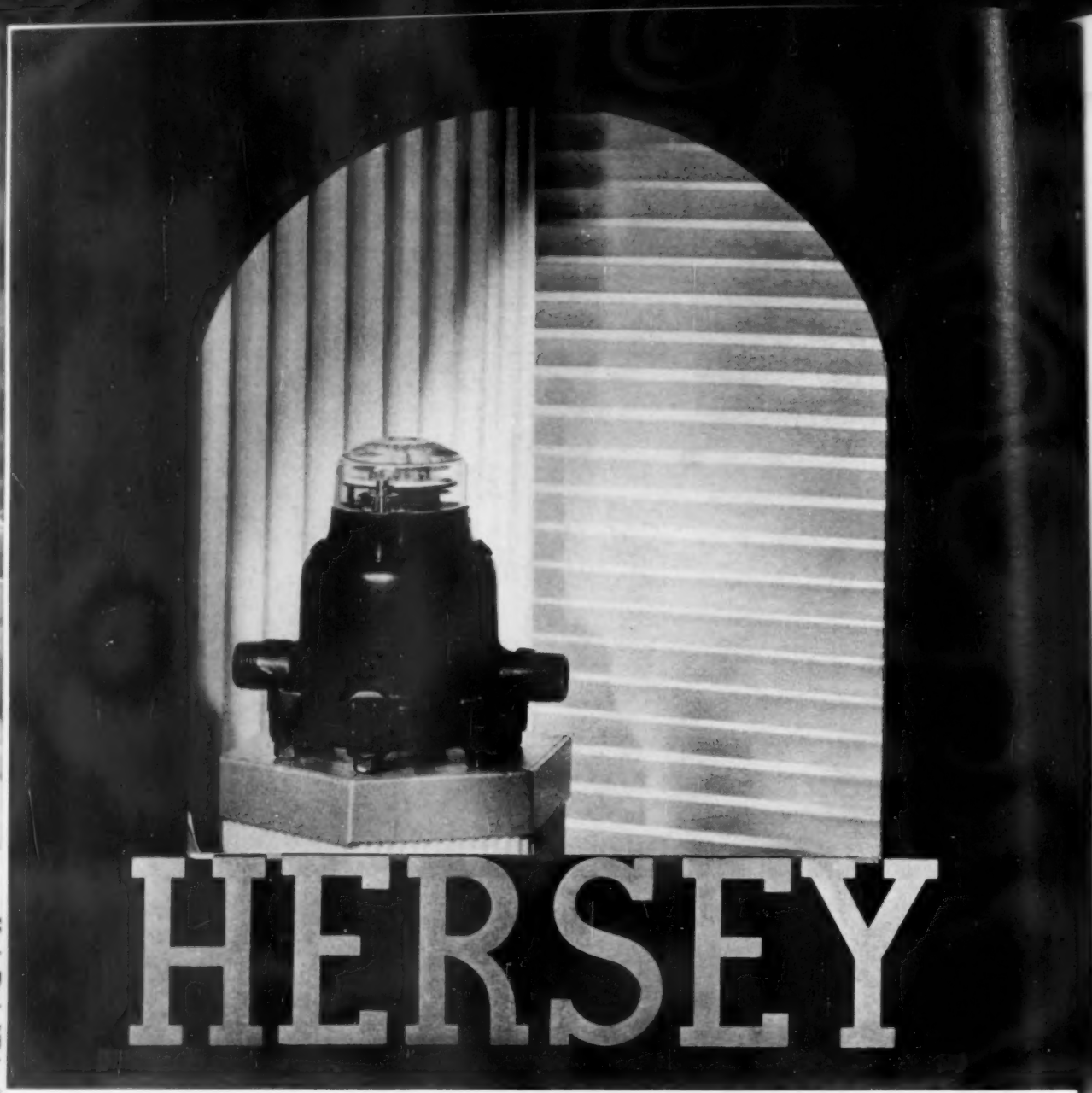
***Aug. 25—Des Moines, Iowa**
American Federation of State, County and Municipal Employees. Biennial Convention. Pres., Arnold S. Zander, 448 W. Washington Ave., Madison, Wis.

* First appearance on this page.

Municipal Bond Market

The following are some recent sales of new issues as reported in March issues of *The Bond Buyer*:

Amount	Borrower and Purpose	Rate (%)	Term (Years)	Basis (%)
$550,000	Calhoun Co., Ia., Primary Road Refunding	0.5	6.25 Avg.	0.396
250,000	Sac Co., Ia., Primary Road Refunding	1.0	6.25 Avg.	0.777
135,057	Wichita, Kans., Paving and Sewer	1.0	5-33 Avg.	0.98
160,000	Cumberland Co., Me., Refunding	1.25	1-16 Ser.	1.20
100,000	New London, Conn., Water Improvement	1.25	8.25 Avg.	1.223
2,000,000	Providence, R. I., Unemployment Relief	1.75	1-20 Ser.	1.65
204,000	Liberty Co., Texas, Refunding	1.84	3/5 A.-O.	1.87
140,000	Nebraska City, Neb., School District, Refunding	2.0	9.5 Avg.	1.89
195,000	Wayne, Mich., Water and Sewer Revenue	3.5	12.66 Avg.	3.47



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Full details in a new circular just issued.

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* Patented by a Hersey engineer June 4, 1907

Polishing the Effluent

(Continued from page 73)

From this point the effluent proceeds to the magnetite filter. This unit will handle flows of 2.3 mgd removing suspended solids as high as 100 ppm. It can handle peak loads of 4½ mgd for four-hour periods. When it backwashes, it returns the waste to the chemical dosing tank for retreating.

The sedimentation tanks were redesigned in the recent improvement, with Chemstone effluent wiers placed at right angles to the flow. The scum, together with the sludge at the bottom of the tank, is delivered by a Marlow sludge pump to the new 50,000-gallon Chicago Bridge and Iron thickening tank. The practice so far has been to hold the sludge over night.

The supernatant liquid is then drawn off and returned to the settling tanks while the sludge flows by gravity to the digestion tanks. There are four units in these tanks having a total capacity of 23,000 cubic feet. All are equipped for gas collection, and one is supplied with a gas holder for gas storage. The gas is piped to an American boiler which heats water that is circulated through the digestion tanks and which has maintained a temperature in them of 80°F during the past winter. Before the improvement it was not possible to maintain nearly so high a temperature during cold weather.

Uses Vacuum Filter

The digested sludge flows by gravity to the Oliver-United vacuum filter for dewatering. To facilitate this, a Wallace and Tiernan feeder adds 4 per cent lime to the sludge, and a Proportioneers chemical feeder applies ferric chloride at a 7 per cent rate. The filtered dewatered sludge, reduced to approximately 60 per cent moisture content, is then delivered by a belt conveyor to the Royer grinder for final disposal.

Sludge Disposal

"We just give the sludge away," says superintendent McKeeman. "At one time we tried selling it but gave it up as a bad job. The difficulty wasn't so much the lack of customers as it was the general confusion and inconvenience it made."

Mr. McKeeman states that their practice was to sack the sludge into 100-pound bags and sell them for 50 cents. However, the chemicals in the sludge were so strong that they destroyed the bags, making it impossible to sack the sludge in advance, and officials decided that the inconvenience of sacking and of entering the bookkeeping transaction was more than the revenue was worth.

Personnel

The sewerage system at Freeport operates under the management of a three-man commission composed of Leo Fishel, chairman; Michael J. Coffee; and Frank H. Holland.

Garbage Collectors

The manpower shortage in garbage collectors is acute in the majority of cities, some cities reporting a complete turnover in the past year, according to the American Municipal Association. Practically all cities have increased wages of their collectors. Akron and Dayton, Ohio, recruit men from outside, and Akron promises housing facilities for outsiders willing to take the jobs. Dallas garbage collectors are now on a salary basis with sick leave and vacation privileges.

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Make sure — today. Write for this testing material now. There is no charge for this service and you are under no obligation.

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The heavily-laden plane that lands so smoothly can mean lots of trouble for underground pipe. Even in a perfect "sit down" the impact equals the full weight of the plane. On less-than-perfect landings this force may be doubled or tripled. Yet drainage systems constructed of ARMCO Corrugated Metal Pipe take the punishment without flinching.

Flexible ARMCO Pipe (plain or perforated) has proved ability to resist crushing, cracking or disjointing under the impact and weight of heavy loads. This means freedom from failure even under shallow cover. You have continued assurance of a firm, dry field with uniform support for runways or direct wheel loads. Other advantages include long lengths; band couplers to assure strong joints; and ease of installation with unskilled labor.

Consider ARMCO Corrugated Metal Pipe when you are planning or building essential wartime airports. Ask your local ARMCO man to show you the Manual of Airport Drainage, or write us direct regarding specific problems. Write today to Armco Drainage Products Association, 185 Curtis St., Middletown, Ohio.

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Municipal and Civic Publications

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Economy in Municipal Services

Pruning the Municipal Budget—Part III.—Massachusetts Federation of Taxpayers Associations, Boston, Mass. 1943. 28 *pp.*

Popular bulletin showing how economies can be made in some individual municipal departments (fire, police, sanitation, schools, public welfare, etc.) by the introduction of better methods. This pamphlet, together with the first two in the series, is intended to serve as a simple, non-technical handbook suggesting numerous ways of giving better service at less cost.

Procedure in City Payroll Deduction

Accounting for Payroll Deductions.—Special Bulletin E. Municipal Finance Officers Association, 1313 E. 60th St., Chicago, Ill. December, 1942. 8 *pp., offset.*

Bulletin showing municipalities the procedure in accounting for payroll deductions for federal tax purposes. Is concerned primarily with general principles, but special applications also are discussed and some of the necessary forms are illustrated.

Control of Speed

Speed—A Library Research.—Eno Foundation for Highway Traffic Control, Saugatuck, Conn. 1943. *Unpaged, mimeo.*

Preliminary draft of a proposed bulletin on the subject of speed control. Advocates a greater reduction in the speed of motorcars in order to combat the increased cost, the waste of gasoline, rubber, and vehicle efficiency and, most important of all, the dangers to life and limb of drivers and other road users. Interesting statistics and graphs.

Publicly Owned Lands

State and Federal Lands in Michigan.—Michigan State Planning Commission, Lansing, Mich. 1943. 40 *pp.*

This report, prepared as a source of factual material, is the third and final study in a series covering land subdividing, publicly owned lands, and reversion of tax-delinquent lands in Michigan. In addition to its review of lands under state and federal control, it brings up to a recent date much of the data on tax-reverted lands previously published. In addition, it reviews the findings of national committees on problems of publicly owned lands, their control, and administration.

Post-War Security Plan

After the War—Toward Security.—National Resources Planning Board, Washington, D. C. 1942. 61 *pp.*

Seeking to clarify major objectives of social security and public aid policy, the National Resources Planning Board has issued this digest, in pamphlet form, of its report, "Security, Work, and Relief Policies," which was transmitted to the President in March, 1943, although completed in September 1942. It reproduces from the larger report the Introduction by the National Resources Planning Board, suggests the broad principles which should govern national public-aid policy in the future and the major financial and administrative principles whose application would facilitate the attainment of proposed objectives, and presents Chapter XIX which summarizes the specific proposals.

Theory of Government

The Modern Government in Action.—By Ernest S. Griffith. Columbia University Press, New York. 1942. *vii* + 91 *pp.* $1.00 *from* THE AMERICAN CITY.

An analysis of six major governmental processes which the author believes are inherent in our culture, rather than those which form our current concept.

Plan for an American City

"The Town of Willow Run."—In Architectural Forum, March, 1943. 19 *W. 44th St., New York City.* pp. 37-54. $1.00.

Sharing the view of many authorities that post-war city planning calls for renovation and new construction, on a larger scale and according to theories that are in many respects ntirely new, the editors of The Architectural Forum present in this issue a special report on the technique of city planning. It describes the plan which was originally proposed for the city of Willow Run and was designed skillfully under the sponsorship of the FPHA. Aided by numerous illustrations, this article gives a case study of the latest methods of city planning applied in actual practice, including new ideas for community centers and new zoning standards, new solutions to complex traffic and utility problems, precautions for pedestrian safety, ways of reducing unit development costs, and new ideas for recreational facilities.

Wartime Zoning

Zoning and the War in Passaic County.—Passaic County Planning Board, Paterson, N. J. 1942. 36 *pp.* 50c.

Feeling that "zoning is the most effective means by which the municipality may now protect itself from the unnecessarily harmful results of the impact of war effort," the Passaic County Planning Board sets out, in this generously illustrated pamphlet, to discuss the impact of war on communities (the effect on transportation, housing, and business), zoning in the New Jersey, New York, and Connecticut region, present zoning in Passaic County, zoning and planning, and administration of zoning laws. At the end the Board presents its summary of findings and recommendations in regard to improving zoning ordinances and policy in the County.

Instruction for Assessors

Assessor's Manual—1943—For the Use of County Assessors of Arkansas.—Compiled by the Tax Division of the Arkansas Corporation Commission, Little Rock, Ark. 1943. 37 *pp., mimeo.*

A manual of detailed information, suggestions, and instruction intended as an aid for the several assessors of the state of Arkansas in the administration of their respective offices and as a means of obtaining a more equitable and uniform assessment throughout the state during the coming year. Gives the methods and procedures for assessing the various kinds of property as well as persons for the purpose of taxation.

Retirement Systems

State Retirement Plans for Municipal Employees.—Prepared by A. A. Weinberg, Managing Actuary, Park Employees Annuity and Benefit Fund of Chicago. Municipal Finance Officers Association, 1313 E. 60th St., Chicago, Ill. 1943. 8 *pp., offset.* 35c.

Purpose of this bulletin is to outline four of the state-wide retirement systems in which local government employees may participate. Information is given about the membership, contributions, benefits, and administration of the systems operating in California, Illinois, New York, and Ohio.

County Reorganization

Modernizing County Government.—Oregon League of Women Voters. 1942. 19 *pp., mimeo.*

In this illustrated booklet the Oregon League of Women Voters presents a pattern of county reorganization which outlines how the functions of county government can operate with utmost efficiency and economy.

Federal Jurisdiction Over Municipal Labor Relations

The Law Relating to Collective Bargaining Between Municipalities and Their Employees and the Effect of the Distinction Between Governmental and Proprietary Functions.—Brief Filed Before the National War Labor Board, December 2, 1942, *by Dana VanDusen, General Counsel, Metropolitan Utilities District, Omaha, Nebr.—National Institute of Municipal Law Officers, 730 Jackson Place, Washington, D. C.* 157 *pp.*

Reprint of the brief filed before the National War Labor Board in connection with the hearing on December 9, 1942, as a result of which that Board denied jurisdiction of disputes between the states, including their political subdivisions, and their employees, and relinquished jurisdiction over state and municipal wages and salaries. This has been distributed so that city attorneys may have the benefit of Mr. VanDusen's research and analysis of the theories of proprietary and governmental functions as applied both generally and to the specific problem considered in this brief: the legal power of municipal corperations to enter into contracts recognizing unions as collective bargaining agents for public employees.

Wartime Problems of Youth

Conference on Childhood and Youth in Wartime.—Called by Council of Social Agencies of Los Angeles, Los Angeles City Board of Education, City Defense Council, Los Angeles County Defense Council, Los Angeles County Coordinating Councils, Ambassador Hotel, Sept. 28-29, 1942. 96 *pp.* 60c.

A series of speeches made at the Conference on Childhood and Youth in Wartime, covering such subjects as juvenile delinquency, child health, jobs for youth, schools, parents, and children—all in relation to wartime conditions. Address on Community Responsibility for Youth in Wartime would be of special interest to THE AMERICAN CITY readers.

Land-Value Taxation

New Zealand's Experience With Land-Value Taxation.—By the Hon. Walter Nash, Minister of New Zealand to the United States. Citizens Housing Council of New York, Inc., 470 Fourth Avenue, New York. 1943. 22 *pp.* 20c.

This pamphlet presents the address delivered by Walter Nash before a joint meeting of the American Institute of Planners and the Citizens Housing Council of New York held in New York in January, 1943. Mr. Nash reviews, for the benefit of those especially interested in taxation problems, certain features of New Zealand's policy and procedure in land-value taxation and he discusses the subject under two general headings—the first, dealing with a tax on unimproved land values imposed by the Central Government, primarily for revenue purposes; the second, dealing with rates levied by the local authorities, also on the basis of unimproved land values. Central thesis is that benefits received by anyone should be based on services rendered.

Business Service of Libraries

Public Library Service to Business.—By Marian C. Manley, Branch Librarian of the Newark Business Branch, Public Library, Newark, N. J., under the Direction of Beatrice Winser. 1942. 215 *pp.* $3.50.

A comparative study of the development of public library service to business in cities of 70,000 and over, which provides librarians as well as publishers, authors, teachers and officials of government bureaus with the information needed to extend this field of service. Part Two is of value to the businessman, as it presents the resources available in different sections of this country.

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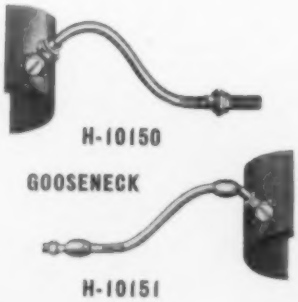

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Police Personnel in Virginia

Statistics on Police Administration in Virginia—Part II—Police Personnel.—League of Virginia Municipalities, 902 Travelers Building, Richmond, Va. 1943. 4 *pp., mimeo.* 25c.

The material contained in the series of reports, of which this is the second, is taken from "Police Administration in Virginia," by George A. Warp of the Bureau of Public Administration, University of Virginia. This report contains statistical information concerning the number of police personnel in Virginia cities for each year from 1935 to 1942 inclusive; the number of policemen by rank in 1942 in various cities; and the number of full-time policemen in Virginia towns.

Urban Rehabilitation Bibliography

A Selected List of Recent References on Urban Rehabilitation in the United States.—Compiled in the Library of the Departments of Landscape Architecture and Regional Planning, Harvard University, by Katherine McNamara, Librarian. 1943. 9 pp.

An annotated bibliography on urban rehabilitation consisting of general and local references, as well as those putting forward major proposals.

Financing Local Improvements

Special Improvement District Finance in Arkansas.—By Estal E. Sparlin. Agricultural Experiment Station, College of Agriculture, University of Arkansas, Fayetteville, Ark. 1942. 82 *pp.*

A study of the special improvement district as a method of financing local public improvements, which determines the indebtedness, extent of default, assessments levied, delinquency, income, and expenditures of special improvement districts, rural and urban, in Arkansas, in relation to the financial operations of these districts. Concludes that there is need for better coordination and administration and explains how this may be accomplished.

Financing Public Education

The Financing of Public Schools in Michigan.—By E. Fenton Shepard and William B. Wood. Bureau of Government, University of Michigan, Ann Arbor, Mich. 1942. 139 *pp.*

A description and analysis of the financing of public education in Michigan and the part played by the three levels of government—federal, state, and local. Special attention is given to the development of the existing basis for financing the public elementary and secondary schools. In order to evaluate the system as it has developed to date, consideration is devoted to the concept of equalizing the financial burden of a minimum school program.

Negroes and American Life

American Negroes—A Handbook.—By Edwin R. Embree. The John Day Co., New York. 79 *pp.* $1.00 *from* THE AMERICAN CITY.

A booklet giving, in brief outline, the story of the American Negro—his adjustment to the new environment, his special contributions, his struggles, and his place today in various phases of American life. The author points to prejudice and discrimination against the Negro as the greatest weakness of our democracy and indicates that consideration of the Negro is not only necessary on the basis of humanity and charity but is also essential to the health, prosperity, and development of the whole nation.

Research and Post-War Planning

Survey of Agencies (Part Six) and Bibliography (Part Six). United Nations Information Office, 610 Fifth Avenue, New York. 1942. 75c *and* 90c., *mimeo.*

Part VI of the series of mimeographed surveys covering 68 non-official agencies in the United States interested in research in post-war planning and reconstruction. The bibliography consists of a list of domestic and foreign periodicals, which have come out during the past year, on war and post-war planning.

Local Government Information

Rockford and Winnebago County—ABC's of Government.—Compiled and Edited by the Legislative Study Group, Rockford, Ill., Branch, American Association of University Women. 1942. 179 *pp., offset.*

Assuming that we are united in a "common devotion to the ideals of democracy," this handbook sets out to fill a need for practical knowledge of how democracy really works and how to make it better. Presents basic information about city, town, and county government in Rockford and Winnebago Counties, Ill., derived from interviews with officials and department heads of these local units, and from the city ordinances and state statutes.

Civilian Volunteer War Work

The U. S. Citizens Service Corps.—United States Office of Civilian Defense, Washington, D. C. 1942. 38 *pp.*

An attractively illustrated handbook, describing and explaining the U. S. Citizens Service Corps—the army of unpaid civilian workers mobilized to do the many civilian war jobs needed to keep the home front strong. Tells the work that must be done in salvage; bond sales; family security; child care, health and hospital, and nutrition services; consumer, housing, and recreation programs; library and information services; and neighborhood leadership; and points out the relation of the Citizens Service Corps to the Local Defense Council.

British Wartime Transport

Transport Goes to War.—Issued for the Ministry of War Transport by the Ministry of Information, His Majesty's Stationery Office, London. 1942. *Apply to British Information Services, 30 Rockefeller Plaza, New York City.* 79 *pp.* 30c.

A pamphlet, dramatic in text and illustration, which tells the official story of British transport, 1939-1942. It describes the problems faced on the railroads, buses, roads, canals and at the ports, and how they were met. It shows how the determination not to let the fighting men down became the driving force of the whole transport industry and how the principles that now govern transport policy —"speed the turnround, cut the waste, improvise all along the line"—were carried into effect.

Air Age Educational Needs

Education for the Air Age.—By N. L. Engelhardt, Jr., Acting Director of Research, Board of Education, Newark, N. J. Prepared with the Cooperation of the Civil Aeronautics Administration and Sponsored by the Institute of Aeronautical Sciences. The Macmillan Co., New York. 1942. *vi* + 65 *pp.* 24c.

Intended as a guide for teachers and school administrators, the pamphlet discusses the effect of the airplane on the world in which we live and presents two sets of problems of education for the air age, namely the urgent aviation needs associated with winning the war, and the long range program (which is particularly emphasized) based on the "need for intelligent understanding and direction of social and economic planning in an air age."

Wartime Education

What the Schools Should Teach in Wartime. —By Educational Policies Commission, appointed by National Education Association of the United States and the American Association of School Administrators, 1201 16th St., N. W., Washington, D. C. 1943. 32 *pp.* 10c.

A pamphlet which sets out to present a fairly specific and practical interpretation of what "all-out" means for the program of education, and proposes some of the important elements of such a program. Briefly outlines the effect which the war should have on: elementary and secondary schools occupational and pre-induction training; the teaching of lnaguages, sciences, physical education, home economics, and art; work experience; preparation for college; and character and citizenship education.

British Reconstruction

Rebuilding Britain.—Published for the Royal Institute of British Architects by Lund Humphries, 12 Bedford Square, London, W. C. 1. 1943. 80 *pp.* 3/6.

The object of this pamphlet is to show the people of Britain how they could rebuild their nation. Opportunities past and present are scrutinized, some of the available solutions to the problem are reviewed, and the various aspects of the subject can be followed pictorially. An account of some work that has already been done to prepare the way for rebuilding follows the illustrations. Emphasizes that the men and women all over the country must make themselves as well-informed as possible now, about the problem of reconstruction in relation to building, in order to give effectual support to the technical skill, knowledge, and imagination of specialists.

Civilian Problems

The Home Front Digest.—By Malcolm Logan. Howell, Soskin, Inc., 17 E. 45th St., New York City. 1942. 231 *pp.* $1.50 *from* THE AMERICAN CITY.

This book is intended as an aid to the civilian in adjusting to the home front problems with which he is faced and gives him practical information on the subjects of air raids, first aid, victory gardens, recreation, etc., and the home front "army" of air raid wardens, Red Cross, fire watchers, etc.

Regulating Bicycle Use

Bicycle Safety Clubs.—City of Covington, Ky. 1942. 26 *pp., mimeo.*

Gives the provisions of the Covington, Ky., bicycle ordinance regulating the use of bicycles upon the streets and requiring the registration of bicycles by the owners and dealers; outlines the constitution and by-laws of the bicycle safety clubs of Covington; and discusses the organization of a traffic court to enforce the rules governing the use of bicycles.

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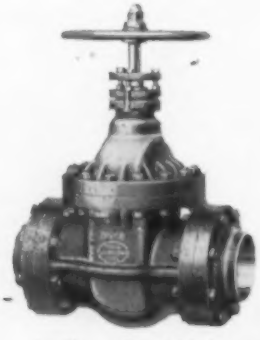

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Gear Pumps for Water Sampling

A Gear Pump Sampler for Chemical Limnology.—By Charles E. Renn, Graduate School of Engineering, Harvard University. Special Publication No. 10, Limnological Society of America. 1942. 4 *pp.*

Description of the use of hand-driven gear pumps (made necessary by emergency conditions) for purposes of water sampling in laboratory work at the Harvard Graduate School of Engineering.

Local Nutrition Programs

Democracy Means All of Us.—Nutrition Division, Office of Defense Health and Welfare Services, Federal Security Agency, Washington, D. C. 1942. *v* + 30 *pp.*

A pamphlet which describes how communities can organize to study and meet community needs, with special suggestions for developing nutrition programs in wartime. Relates the basic principles which apply to community organization everywhere to programs in the process of development in six typical American localities, which are given fictitious names.

Wartime Traffic Control

Fitting Traffic Control to Wartime.—Office of Defense Transportation, Washington, D. C. 1943. 15 *pp.*

Reproduces the 12-point statement of policy issued by the ODT for the guidance of local and state authorities; shows in more detail the measures which should be undertaken by municipal and state officers and agencies with regulatory powers over traffic to put the ODT policies into effect; and describes the standards which should be used in determining necessary changes.

Day Care for Children

Survey of Need for Day Care Among Children of Working Mothers in New Brunswick.—State of New Jersey, Department of Public Instruction, Department of Institutions and Agencies, Trenton, N. J. 1943. 13 *pp., offset.*

A summary report of the results of a survey, recently conducted with the cooperation of school officials and teachers in New Brunswick, N. J., which aimed to find out to what extent mothers with school and pre-school children go out of the home to work and what care their children have while mothers are away from home. It is intended that this information plus the summary of findings and recommendations will help the community in making plans to meet this problem.

Social Work

Social Work Year Book.—1943.—Russell H. Kurtz, Editor. Russell Sage Foundation, 130 E. 22d St., New York City. 1943. *Seventh Edition.* 764 *pp.* $3.25.

Report of the current status of organized activities in social work and related fields. Part One consists of a group of 78 signed articles giving a cross-sectional view of organization and practice in the various fields, and Part Two consists of four directories of agencies (national and state, both governmental and voluntary) whose programs are integral with or related to the subject matter of Part One.

Planning Trends

American Planning and Civic Annual.—Edited by Harlean James. American Planning and Civic Association, 901 Union Trust Building, Washington, D. C. 1942. *x* + 254 *pp.* $3.00.

A record of recent civic advance in the fields of planning, parks, housing, and neighborhood improvement in the nation, in the states, and in the cities and towns, which includes the addresses and discussions of the National Conference on Planning and the Round Table Conference on Wartime Uses of State Parks, held in May and September respectively, 1942. This year's Annual covers post-war as well as wartime emergency planning, and reveals the accession of popular interest in planning objectives and practices in general.

Other Reports Received

Public Employment in the United States: January 1942—With Special Attention to State and Local Government.—(Bureau of the Census, U. S. Department of Commerce) Washington, D. C. 1942. *viii* + 108 pp., offset.

Planning for the Post-War World.—Building America, 2 W. 45th St., New York City. 1943. 95 pp. 30c.

CHICAGO, ILL.—The Annual Appropriation Ordinance of the City of Chicago for the year 1943. Apply to Municipal Reference Library, 1005 City Hall. 158 pp.

CRAIGHEAD COUNTY, ARK.—Finances and Operations of Craighead County, Ark. 1940-41. Craighead County Taxpayers' Association and Arkansas Public Expenditure Council. vi + 71 pp., mimeo.

DARTMOUTH, NOVA SCOTIA.—Annual Report, 1942. 88 pp.

DETROIT, MICH.—Annual Report, City Plan Commission, 1942. 21 pp., mimeo.—Official Compensation Schedule, 1942-43. 38 pp.

DORVAL, QUE.—Financial Statement, 1941-42. 10 pp.

ELECTRA, TEXAS.—"Facts About the City of Electra, Texas and Area." 1492. Unpaged.

GLYNN COUNTY, GA.—A Long-Range Program of Public Improvements, 1942. iii + 44 pp.

INGLEWOOD, CALIF.—Long-Range Program of Public Works, 1942-43—1947-48. 30 pp., mimeo.

IPSWICH, MASS.—Annual Report, for the year ending Dec. 31, 1942. 32 pp.

KANSAS CITY, MO.—Annual Report, Police Department, calendar year, 1942. 48 pp.

LEXINGTON, KY.—Budget, 1943. Audit Report, year 1942. 85 pp.

MISSOURI.—Report on Central Purchasing in Missouri. Missouri Public Expenditure Survey, 210 Monroe St., Jefferson City, Mo. 1943. 27 pp.

OREGON.—License Fees and Occupation Taxes in Oregon Cities. Bureau of Municipal Research and Service, University of Oregon cooperating with The League of Oregon Cities, Eugene, Ore. 1943. 18 pp., mimeo.

PHILADELPHIA.—Receipts from Philadelphia's Income Tax. Bureau of Municipal Research of Philadelphia. 1942. 5 pp., mimeo.

PROVIDENCE, R. I.—Financial Data, 1932-1942. Providence Governmental Research Bureau, 32 Westminster St., Providence, R. I. 15 pp.

REEDSBURG, SAUK COUNTY, WIS.—A Long-Range Capital Improvement Program. 1942. Unpaged, mimeo.

ROANOKE, VA.—City Auditor's Financial Report, fiscal year ended Dec. 31, 1942. 64 pp.

ST. LOUIS, MO.—"St. Louis After World War II." City Plan Commission. 1942. 36 pp.

SANDWICH, MASS.—Annual Report of the Selectmen and other Town Officers, for the year ending Dec. 31, 1942. 131 pp.

TORONTO, ONT.—Annual Report, Assessment Commissioner, for the year ended December 31, 1942. 43 pp.

VANCOUVER, B. C.—"Zoning Diagram." Town Planning Commission, 626 W. Pender St., Vancouver, B. C., Can. 1942.

WASHINGTON.—War and Post-War Readjustments—Preliminary Statement. Washington State Planning Council. 1942. 25 pp., mimeo.

—Financial Statistics of Washington Cities, 1941. Association of Washington Cities and the Bureau of Governmental Research, University of Washington, Seattle, Wash. 1942. 57 pp., offset.

WYANDOTTE, MICH.—Annual Report, City Clerk, 1942. 61 pp.

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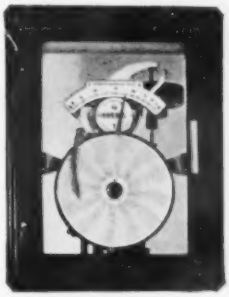

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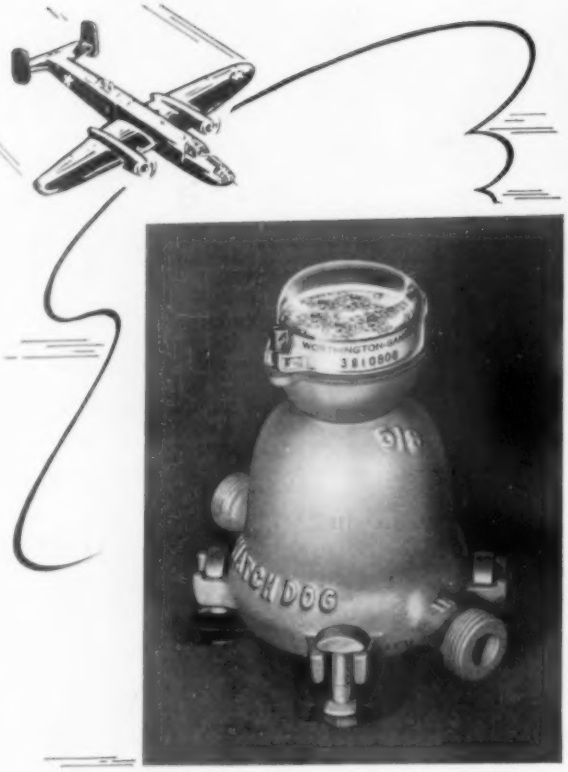

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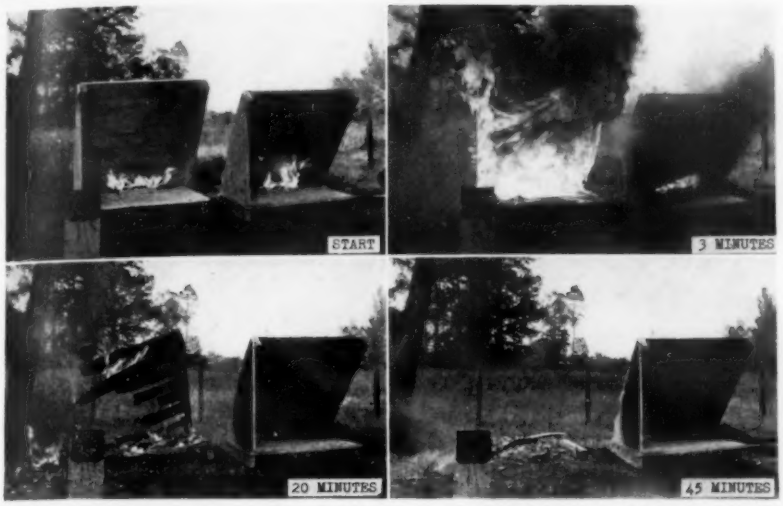
News and Illustrations

Items of Interest to City, Town and County Officials and Others Concerned with the Economical Construction and Efficient Operation of Public Improvement Undertakings

Making Wood Fire-Resistant



The dramatic illustration of the effectiveness of fireproofed wood. These two small structures were built from the same type of wood with the exception that one was treated with fire-retardent salts. The same type of fire was set in each one with the results shown. The fire, incidentally, developed a temperature of 1900°F.

A significant wartime development in the use of wood indicates that the two main objections to its widespread use—susceptibility to fire and rot—are being overcome by chemical treatment. This new fire-resistant feature—cautiously called flameproofing by the American Lumber & Treating Co., 332 South Michigan Ave., Chicago, Ill.—has been developed sufficiently so that even exacting federal bodies such as the Navy have been using it for important installations like blimp hangars where fire resistance is important.

During the last ten years, in the U. S. Forest Products Laboratory, in the Bureau of Standards, and in technical divisions of wood-preserving companies, over 130 formulas have been studied for fireproofing qualities. The results of this continued chemical research formed the basis for the recently issued Federal Specifications for fire-retardant chemicals and processes. Consequently, new government standards for flameproofing represent a combination of technical effectiveness and commercial workability.

As in "Wolmanizing" and other wood preserving processes, treatment for fire retardance is of value if carried out in closed cylinders by a pressure process. This assures a deep and uniform penetration and a high absorption of chemicals. Furthermore, treating conditions can be kept under positive control at all stages of the schedule.

Heat does not cause wood to lose temper. When pressure-treated with fire retardants, wood does not contribute fuel to the fire and only surface-chars at the point where the flame touches it. At present engineers have not succeeded in preventing the salts from leaching by rain; therefore the wood should be used in places protected from the weather or, if exposed, should be given a careful coating of protective paint.

The present work is significant to city officials since it gives them another material to use in constructing permanent, fire-safe buildings. It is significant also in that it may lead to the revision of building ordinances to recognize its use in fireproof districts.

Lowe New Head of Proportioneers

Rudy P. Lowe has recently been made president of Proportioneers, Inc., 99 Codding St., Providence, R.I., to fill the vacancy created by the resignation of Jeff Corydon.

R. P. Lowe

Mr. Lowe, a graduate of the Illinois Institute of Technology, first served in Chicago as consulting engineer. He began his services with Proportioneers in 1932 and prior to his election as president was the company's vice-president and chief engineer.

Mr. Lowe becomes president of the company at a time when proportioning equipment is playing an increasingly important role in wartime; over 8,700 Proportioneers are now serving the armed forces, industries, and municipalities all over the world.

More Factory Space for VAREC

The Vapor Recovery Systems Co., Compton, Cal., manufacturers of "VAREC" tank equipment and safety devices, is completing its seventh addition to its main factory since Pearl Harbor. The new addition, which is 5,000 square feet, will house the assembly and production line. The "VAREC" policy of manufacturing all parts in "VAREC" approved equipment "under one roof" is now in operation. This greatly facilitates keeping production schedules on time, Frank V. Long, president, asserts.

Municipalities which have Morris Storm Water and Drainage Pumps need not fear sudden heavy storms, even if severe. These highly efficient, dependable units are protecting scores of municipalities in many sections of the country, and can be furnished for any operating conditions or methods of control.

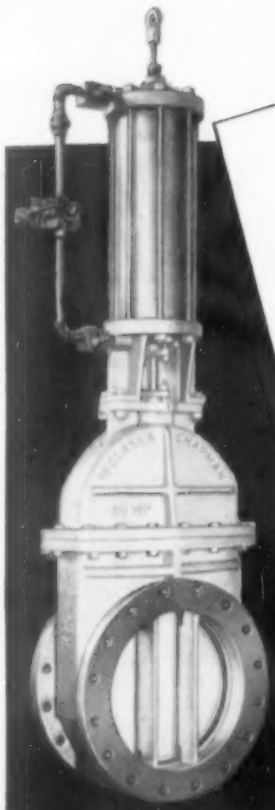
Bulletin on request

MORRIS MACHINE WORKS
BALDWINSVILLE, N. Y.

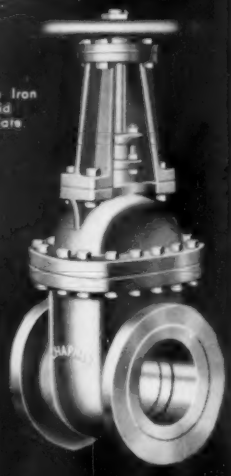
MORRIS
CENTRIFUGAL PUMPS
for municipal services

92 CHAPMAN "Beamed Waterway" GATE VALVES

FOR TENNESSEE'S VOLUNTEER ORDNANCE WORKS...

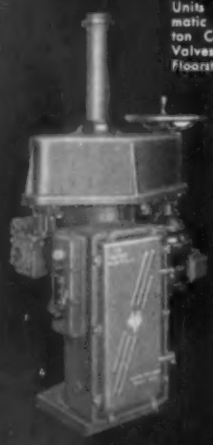


Chapman Beamed Waterway Gate Valve with Hydraulic Operating Cylinder

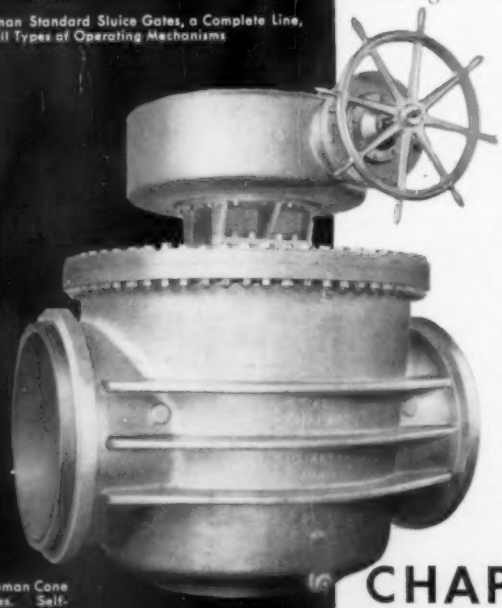


Chapman Iron Body, Solid Wedge Gate Valves.

Chapman Standard Sluice Gates, a Complete Line, with all Types of Operating Mechanisms



Chapman Motor Units for Automatic Push-Button Control of Valves, Gates, Floorstands.



Chapman Cone Valves. Self-Cleaning. Plugs fully seated and fully protected.

For the new plant of the Volunteer Ordnance Works at Tyner, Tennessee . . . engineered by Stone & Webster . . . Chapman built 92 Beamed Waterway Gate Valves with hydraulic cylinders, in sizes from 10" to 30". This type of valve was developed by Chapman to prevent the excessive wear on seats encountered in double-disc parallel-seated gate valves which, when open, tend to tip the downstream disc into the waterway, leaving small contact between disc facing and body seat ring. In Chapman's Beamed Waterway Valve, extra bearing contact is secured by vertical beams in the downstream port, so the disc can't tip into the waterway, wear the seat rings, and cause leaks.

This exclusive design is a noteworthy instance of Chapman's advanced engineering in all types of equipment for waterworks, sewage, and filtration plants. Chapman always designs and builds for tomorrow as well as today . . . to protect investment and keep maintenance down where it belongs. That's why it pays to "check with Chapman."

THE CHAPMAN VALVE MANUFACTURING COMPANY

INDIAN ORCHARD, MASSACHUSETTS

J. W. Gardner, Old-School Industrialist

The recent death, on Feb. 1, of Mr. J. W. Gardner, after a long illness, has again brought into focus the progressive career of one of the country's old-school industrialists. Born August 19, 1863, Mr. Gardner was associated with the Gardner - Denver Company from 1881 until ill health forced him to withdraw from active participation in business several years ago.

J. W. Gardner

Mr. Gardner was a student of Illinois College in 1881 when he became a permanent employee in his father's company—the Gardner Governor Company, founded in 1859. In 1883 the company erected a plant in Quincy, Ill. In 1905 Mr. Gardner, who had completed his preliminary training by progressing through the various departments of the company, was selected by his father to assume active management.

Under Mr. Gardner's able direction, extending over a period of more than sixty years, the Gardner-Denver Company grew from a small concern employing forty men to the present company with its payroll of more than two thousand employees. His unusual ability to select, train, and inspire his associates was one of his greatest contributions to the growth and progress of the business. During his period of active management, Mr. Gardner served as President, Chairman of the Board, and finally as Chairman of the Executive Committee.

Jenkins Valve Receives Maritime "M"

The workers of the Bridgeport, Conn., plant of Jenkins Bros., 80 White St., New York, valve manufacturers, were awarded the "M" pennant for outstanding production of work relating to the maritime service by the U. S. Maritime Comission, on March 2. The presentation was made by Charles E. Walsh, Director of Procurement.

The ceremonies, which were held at noon on one of the floors of the new building, were broadcast over a nation-wide radio network. Governor Raymond E. Baldwin of Connecticut was the principal speaker. Others who spoke congratulating the workers were Mayor Jasper McLevy of Bridgeport; Farnham Yardley, President of Jenkins Bros.; Bernard J. Lee, Vice-President in charge of manufacturing, and Bill Dunn, CBS war correspondent.

Mr. Lee received the "M" pennant and the Victory Eagle flag from Mr. Walsh on behalf of the workers, and immediately turned them over to four of the oldest employees. Mr. Walsh also presented the Labor Merit Badges to four representative workers. Each member of Jenkins Bros. received one of these emblems for the Maritime Commission.

Wartime Care of Centrifugal Pumps

Maintenance pointers on all makes of centrifugal pumps have been incorporated into an interesting handbook by the Allis-Chalmers Mfg. Co., Milwaukee, Wis. Absolutely free of any advertising, it gives specific recommendations for putting pump care on a wartime basis. Valuable tips are included, covering such timely subjects as how a change in liquid can "blitz" a pump, easy ways to find leaks, common mistakes in packing stuffing boxes, how tight is "too tight" for a gland, how to protect against cavitation, and many others.

This manual may be obtained free of charge by writing to Allis-Chalmers Mfg. Co. and mentioning this magazine.

Liquid Level Controls

Is your problem one of controlling the level of liquids of an explosive nature such as gasoline or oil? Photoswitch, Inc., Cambridge, Mass., announces a new series of electronic level controls designed for hazardous location mountings on tanks containing such liquids.

Two models are available for high- and low-level control. Each is furnished as a complete unit in a vapor-proof, cast-iron housing for direct tank installation. A one-inch nipple screws into the hub at the bottom of the control housing and is screwed into a one-inch flange at the top of the tank. From the control, a probe rod projects through the nipple and into the tank to the desired depth. The probe is supplied as standard in one-half inch diameter brass.

High-level control is accomplished when the liquid rises and contacts the probe tip; low level control, when the liquid drops below the probe tip. Both models incorporate a safety feature providing for operation of the relay in case of current or tube failure.

This Photoswitch level controller is designed especially for explosive liquids.

POLLARD MELTING FURNACES

A sturdy furnace that will melt 125 pounds lead in 20 minutes. Equipped with a single burner of latest improved removable coil type designed for efficient and long service.

A handy outfit for quick action.

For melting lead we particularly advise the use of our Portable Gasoline Furnace. Equipped with newest design gasoline vaporizing type burner which melts 200 pounds of lead in 15 minutes.

The torch equipment is detachable and can be used for melting lead out of pipe joints, and thawing out ground in winter excavation.

JOSEPH G. POLLARD CO., INC.

PIPE LINE EQUIPMENT

143 Ashland Pl. BROOKLYN, N. Y.

PLEASE SEND CATALOG DESCRIBING COMPLETE LINE

Name .....

Address .....

Company .....

Rot Will Ruin This Wharf—

CUPRINOL

Stops Rot!

Send for descriptive booklet

Along the waterfront, in salt water or fresh, where you have wood construction not large enough to justify pressure treatment, use Cuprinol to protect the wood against rot, insect borers, marine growth and decay. Cuprinol is a penetrating liquid easily applied by brush, spray or dipping, used either as a priming coat or by itself.

It protects wharves, floats, boats, posts; canvas; rope. Tests by a seaboard city showed that life lines continually submerged in salt water treated with Cuprinol were as strong after two seasons as untreated rope was at the end of one.

CUPRINOL, Inc., 26 Spring Lane, Boston, Mass.

Speed Sweep Brushes

FOR FASTER, CLEANER EASIER SWEEPING

NO. 411-14"
$1.95 EACH
Lots of 12
F.O.B. MILWAUKEE

Wire-drawn tufts.
Adjustable handle.
Highest grade bassine fibre 5¹/₄" trim.
Narrow, light weight block with Pressed Steel back.

HEAVY DUTY "SPEED SWEEP"—the ideal brush for street and other outside work. High grade bassine tufts are compact and trimmed for "spring and snap action." Study its unique construction, and you'll understand why it does a better sweeping job in less time and with less work. Sizes 12" to 24". Price range: $1.80 to $2.70 in lots of 12.

DOUBLE DUTY "SPEED SWEEP"—the ideal brush for inside wood and cement floors. It handles fine dust as well as heavy dirt. Two center rows of tufts are of heavy bassine to handle rough dirt while the outside rows are finer Union fibre to control fine dust particles. The general construction of Double Duty Speed Sweep brushes is identical to that of the Heavy Duty Speed Sweep. Sizes: 12" to 24". Price range: $1.95 to $3.05 in lots of 12. Speed Sweep brushes have been proved by so many municipalities and under such varied conditions that they are sold with an unconditional guarantee to meet your requirements. Shipment will be made promptly if you supply an A-10 or higher rating. Write for descriptive folder and price list today.

MILWAUKEE DUSTLESS BRUSH CO., 520 N. 22nd St., Milwaukee, Wis.

SANITARY ENGINEERS

Send for Facts on Our "NON-CLOG"

SEWAGE SHREDDERS

Gruendler Shredders Selected by U. S. Navy

The Ideal Unit for Municipal Sewerage Plants

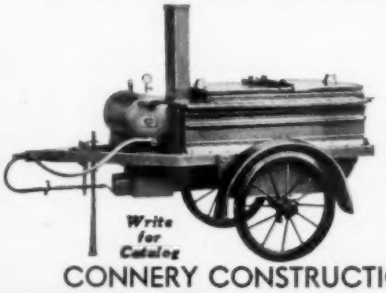
GRUENDLER CRUSHER & PULVERIZER CO.
PLANT AND MAIN OFFICE — 2913-15 N. MARKET — ST. LOUIS, MO.

"Established in 1885"

For the disintegration of Rag, Stock, Garbage, Floatables, and Fibrous Materials *without Choke Down* so as to pass Screen Bar—

Write for Facts

CONNERY'S



Write for Catalog

TAR and ASPHALT HEATING KETTLES

•

SPRAYING ATTACHMENTS

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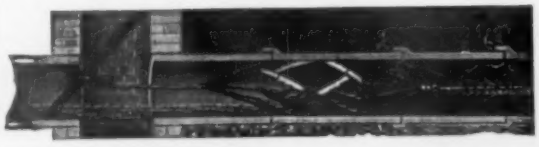
POURING POTS, etc.

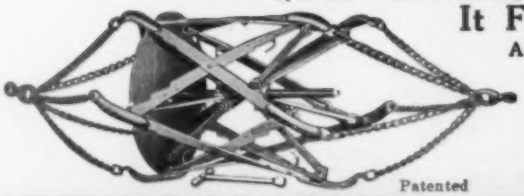
CONNERY CONSTRUCTION CO.

4000 North Second St. Philadelphia, Pa.

EXPANDING ROOT CUTTER & SEWER CLEANER



Open and in action removing roots and caked sediment like this.



Patented

It Fits in on Every Sewer Cleaning Job

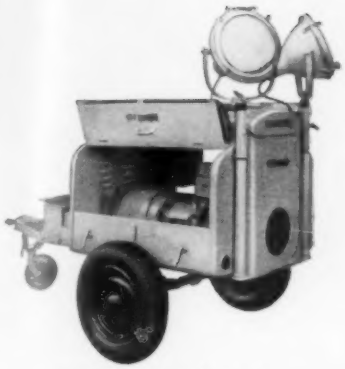
Adjusted in 30 seconds to fit any sewer from 8 to 30 inches.

Will clean the entire sewer wall, top, and sides as well as the bottom, cutting and removing the roots and caked sediment, putting the sewer system in almost 100% clean condition.

Write for our new catalog on complete sewer cleaning equipment.

EXPANDING SEWER MACHINE COMPANY

108 East Walnut St. **Nappanee, Ind.**



Portable Aircraft starter.

New Aircraft Starter Unit

A new, portable aircraft starter unit, known as the Nite-Hawk "Aero-Start," has been developed by Lister-Blackstone, Inc., Milwaukee, Wis., manufacturers of Nite-Hawk floodlight and searchlight units.

It provides power for starting all electrically started aircraft engines by simply plugging to the control panel. The outfit, according to the manufacturer, possesses the distinct advantage of delivering constant voltage during the starting cycle, which means quicker take-offs. The same holds true for engines in the maintenance shop.

The outfit consists of a steel-housed, spring-mounted trailer unit as illustrated, in which is housed a direct current electric generator that delivers up to 500 amperes at both 12 and 24 volts. Power is supplied by a 19-hp, 4-cylinder, air cooled gasoline engine, complete with electric starter. A pair of 24-volt floodlights, mounted on telescopic adjustable supports, on the front of the Aero-Start supply light for night operations.

National distribution is handled by the Graybar Electric Co. with branches located in 86 principal cities throughout the United States. Additional information may be obtained by writing to the manufacturer.

Ex-Graybar Official Heads Signal Corps Division

After 26 years of service with Graybar Electric Co., 420 Lexington Ave., New York, D. H. O'Brien has resigned recently to devote himself entirely to his new work in the U. S. Signal Corps.

Major General Roger B. Colton of the Signal Corps has just announced that Mr. O'Brien will head the new Field Service Division of that branch of the army. Acting in a civilian capacity, Mr. O'Brien will supervise the coordination of distributing signaling equipment and spare parts and maintenance and repair activities, in both interior zones and theatres of combat. His headquarters will be in the Pentagon Bldg., Washington, D. C.

Fire Insurance and the Home Front

Fire insurance is playing a vital role on the home front, according to Harold V. Smith, president of The Home Insurance Co., 59 Maiden Lane, New York. The foresightedness of the company may be seen by the fact that months before our entry into war the "industry which protects other industries" had quietly and effectively thrown its inspection and engineering facilities into the task of helping to safeguard the industrial plants of the nation from sabotage and carelessness.

In its 90th annual financial statement, The Home Insurance Company discloses that premiums written during 1942 decreased slightly from 1941. This drop, Mr. Smith states, can be attributed directly to the decrease in the automobile insurance.

Newell Appointed To Mack Truck Board

William S. Newell has been appointed to the board of directors of Mack Trucks, Inc., according to Louis G. Bissell, chairman of the Mack board. Mr. Newell is President of Todd-Bath Iron Shipbuilding Corp. and of Bath Iron Works.

Along with his new appointment at the Mack company, Mr. Newell holds directorships in the Maine Central Railroad, Fay and Scott, Bath Savings Institution, and the Union Mutual Life Insurance Co.

HYDRO-TITE

A DEPENDABLE JOINTING COMPOUND FOR BELL & SPIGOT WATER MAINS

HYDRO-TITE is a self-caulking sulphur base jointing compound used to joint Bell & Spigot cast iron water mains and soil pipe. It is made in powder form which insures uniformity and quick melting.

For more than 30 years Hydro-Tite has been used by Water Companies and Water Departments everywhere. Hundreds of tons of Hydro-Tite are now being used on strictly war projects under War Department and Navy specifications.

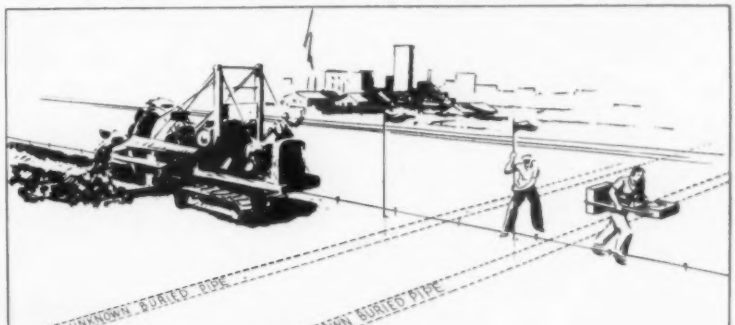
HYDRAULIC DEVELOPMENT CORP.

Main Sales Office:
50 Church Street, New York, N. Y.

General Office & Works:
West Medford Station, Boston, Mass.

M-SCOPE

BURIED PIPE AND CABLE FINDER



The M-Scope is solving—successfully—the varied problems involved in the development, operation and maintenance of buried pipe and cable systems and is in daily use by representative organizations in such important groups as:

Government Projects
Municipalities
Sewerage and Water Plants
Consulting Engineers
Airports
Public Utilities
Industrial Plants
Oil and Pipe Line Companies

WATCH FOR OUR SERIES OF MONTHLY ADVERTISEMENTS IN *THE AMERICAN CITY* REGARDING THE USE OF THE M-SCOPE.

FISHER RESEARCH LABORATORY

Direct Teletype by Postal Telegraph PALO ALTO, CALIF.

Here Lived the Conscience of Democracy

57-59 MAIDEN LANE

WHEN the immortal Jefferson was Secretary of State in the early, troubled days of the Republic, he lived at 57 Maiden Lane, New York. Not as picturesque or as celebrated as his famous establishment at Monticello, the residence at Maiden Lane is none the less associated with many significant incidents in the history of our country.

As we celebrate the bicentenary of Thomas Jefferson's birth this year, it is worthy of note that many happy coincidences exist in Jefferson's life and in that of the Home Insurance Company. The site of his residence, above, is now the main office of the Home. The company was founded on the One Hundred and Tenth anniversary of Jefferson's birth—April 13, 1853. And therefore the Home celebrates its Ninetieth birthday this year on the date that the nation celebrates the Two Hundredth anniversary of Jefferson's natal day.

Accordingly, it is with particular pride and pleasure as Americans that we join in the national tribute to the man who was in his lifetime the conscience, as he is today regarded as a principal founder, of the American democracy which we are now fighting to defend.

The Home, through its agents and brokers, is America's leading insurance protector of American Homes and the Homes of American Industry.

☆ THE HOME ☆
Insurance Company
NEW YORK
FIRE ★ AUTOMOBILE ★ MARINE INSURANCE

Ninetieth Anniversary Year

M. N. Davis Dies, Dresser Executive

The unexpected death on March 7 of Merril N. Davis, Executive Vice-President of the Dresser Mfg. Co., Bradford, Pa., ended the career of an executive well known in the municipal field.

Merrill N. Davis

Mr. Davis became associated with the Dresser Mfg. Co., and in 1919 took charge of sales and advertising. In 1928 he was elected a director, in 1929 he was named vice-president and later the same year secretary. He was active in numerous professional societies and civic clubs.

Asphalt Institute Elects Officers

At their annual meeting the Board of Directors of The Asphalt Institute, 801 Second Ave., New York, representing most of the major petroleum asphalt producers of the United States and Canada, reelected Herbert Spencer president of the organization for the ensuing fiscal year. J. A. Blood, Standard Oil Company of California, was made Chairman of the Executive Comittee—C. W. Barbour, Allied Materials Corp.; H. B. Pullar, Berry Asphalt Co.; David Waxman, Shell Oil Co.; and Herbert Spencer completing the committee.

Other officers elected were: vice-presidents, C. W. Barbour, Allied Materials Corp.; A. M. Maxwell, Standard Oil Co. (Ohio); Glenn Nielson, Husky Refining Co.; H. G. Nevitt, White Eagle Division, Socony-Vacuum Oil Co., Inc.; H. B. Pullar, Berry Asphalt Co.; F. V. Widger, The Texas Co.; and Roger Williams, Standard Oil Co. of Louisiana. George R. Christie, Standard Oil of New York was elected secretary and treasurer, with John N. Smith of the same company as assistant treasurer.

Bernard E. Gray was appointed general manager of the Institute by the Board of Directors, adding to his duties already held as chief engineer. His new title is general manager and chief engineer.

A War Development for Controlling Insects

Health authorities have developed a new "bomb" for fighting mosquitoes and other insects. Used now for strictly military purposes, it should have a place in post-war work, particularly in controlling insect nuisances in outdoor gatherings.

The new weapon is an insecticide dispenser that discharges a mist fatal to disease-spreading flies and mosquitoes, but harmless to humans. The six-inch metal dispensers—each about the size of a tin can—are called "bombs" by workmen who make them at the rate of thousands a day in an eastern Westinghouse plant.

The dispenser is used at present by the armed forces in tropical jungles. With it, the Army hopes to reduce sharply the casualty rate of past wars in which disease incapacitated as many men as did bullets. The "health bombs" will be discharged frequently in tents and barracks wherever troops are stationed in the tropics and in the cabin of every airplane that takes off from a tropical base.

Demonstrating the new insect-fighting "bomb."

New Lead Melter

For melting of lead, babbitt, and other soft metals a new Model D-2 lead melter is being produced by the White Mfg. Co., Elkhart, Ind.

This melter is furnished with a removable cast-iron pot having capacity of 430 pounds. It is equipped with an oil-burner for kerosene or distillate and has a 15-gallon capacity fuel tank. The tank is provided with hand air pump, pressure gauge, safety filler, and oil strainer valve.

The unit is mounted on 30-inch steel wheels. It can thus be moved readily over rough terrain and is convenient for use in industrial plants or on hard surfaces. It has a folding leg to prevent tipping over. The shipping weight, uncrated, is 425 lbs.

New Model D-2 lead melter.

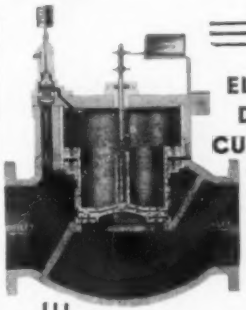
There's a Lot to Be Done!

As soon as peace is restored, the interrupted "national clean-up" program for doing away forever with sewage pollution of streams, harbors and shore lines, will be resumed with government financial encouragement.

Perhaps you engineers already are making preliminary layouts and preparing cost estimates for the new work and for rehabilitating neglected sewage treatment plants. 24-page Bulletin 287 has been prepared for your assistance. A post-card will bring you a copy. Write to Builders-Providence, Inc., 9 Codding St., Providence, R. I.

Sincerely Yours,

BUILDERS - PROVIDENCE



ELECTRIC DOUBLE CUSHIONED CHECK VALVE

★

This valve is for use in connection with remote tank storage service with valve located adjacent to motor centrifugal pump, also where a high-low pressure or float-operated switch located at tank is wired to the valve in order to accomplish complete automatic sequence of operation for starting and stopping the pump with respect to storage water levels.

Sizes 3" to 36", angle and globe patterns.

Write for Specifications

GOLDEN-ANDERSON VALVE SPECIALTY CO.

Fulton Building Pittsburgh, Pa.

Always . . . GOOD SERVICE to BEAN Owners Everywhere

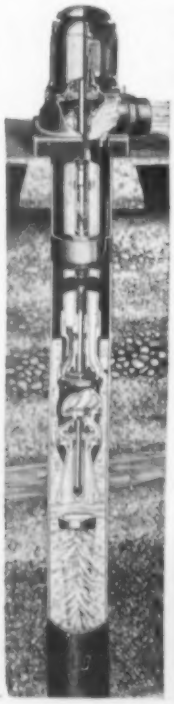
While the manufacture of wartime equipment means fewer new sprayers this year, we are doing everything possible to help you keep your old BEAN rolling. Authorized BEAN dealers everywhere are ready with parts, repairs, and BEAN experience to give you prompt service when it's needed. Now, more than ever, you will appreciate the simple, rugged, get-at-able BEAN design, the ease with which it is maintained, and the long, hard service it delivers with little attention except to start and stop the engine.

JOHN BEAN MFG. CO.
Division of Food Machinery Corporation
9 HOSMER STREET • LANSING, MICHIGAN
105 WEST JULIAN STREET • SAN JOSE, CALIFORNIA

BEAN SPRAYERS ...Better ALL Ways

Make Your Pump Last Longer

PEERLESS PUMPS



LET'S KEEP 'EM FLOWING. Your Peerless Pump is ruggedly built for years of hard service, regardless of usage. But it will run better, deliver your water supply more faithfully, over a longer period of time, if it is given the attention it deserves.

Do your part—make your pump last longer. Ready to serve you in case you need pump parts or service, is the whole Peerless organization, manufacturer and dealers. These dealers know your pump,—know how to keep it flowing. Call on them for service,—that's one of the important parts Peerless dealers are playing to help you win the war.

PEERLESS CAPACITIES: 15 to 15,000 g.p.m. in Turbine types,—all forms of drive in other types, from 10 to 200,000 g.p.m.

Ask for Literature

PEERLESS PUMP DIVISION
FOOD MACHINERY CORPORATION
Factories: Los Angeles, San Jose, Fresno, Calif., and Canton, Ohio.

WATER OR OIL LUBRICATION
Peerless TURBINE PUMPS

SORRY, NO WEED-KILLER

Raw chemicals for Dolge Weed-Killer are unobtainable, because Uncle Sam needs them for the all-important job of smashing the axis. However, we can still furnish most of the other Dolge chemicals for maintenance: disinfectants, fungicides, deodorants, insecticides, cleaners, floor finishes, etc. Please write.

The C. B. DOLGE Company
Westport Conn.

HYDRAUGER
THE MECHANICAL GOPHER

THE *PROVED* AND APPROVED METHOD OF UNDERGROUND PIPE INSTALLATION

MODEL 2A-2X

Proved by years of low-cost service. Approved by utilities and municipalities.

★ No Ditching
★ No Backfilling
★ No Repaving
★ No Hazards

HYDRAUGER CORPORATION, LTD. - Rialto Bldg., San Francisco, Calif.

Officials at the Army-Navy "E" award ceremonies at Glamorgan Pipe and Foundry Co. John D. Capron, president of the company, is second from the right.

Glamorgan Receives Army-Navy "E"

The Army-Navy "E" for excellence in war production was presented to the Glamorgan Pipe and Foundry Co., Lynchburg, Va., on March 9 in a ceremony attended by more than two score high-ranking government officials, Army and Navy officers, and other dignitaries.

In making this presentation, Col. John L. Person, of the U. S. Army's engineers office stated, "the time has passed when war can be won on the field alone. Production has set the way for our country to send 1,500,000 soldiers across the sea and you are part of the production."

The flag was accepted by John D. Capron, president and general manager of the pipe concern since 1930. Anthony Lloyd, an employee since 1916, received the first of the lapel pins which went to each of the company's employees.

"At this time," said Mr. Capron when accepting the award, "we renew our pledge to devote all our energy in the backing up of our men on the fighting fronts."

Personnel Changes of American Meter

Norton McKean has been recently elected president of the American Meter Company, Buffalo, N. Y., by the board of directors. He was formerly vice-president, treasurer, and general manager and succeeds the late Francis H. Payne.

Norton McKean

Other actions by the board named John C. Diehl and Arthur E. Norton as vice-presidents. Mr. Diehl formerly was chief engineer and will manage the Metric Metal Works, Erie, Pa. Mr. Norton will manage the Boston plant serving the New England area.

Calvin A. Nichols has been made acting treasurer, and Arthur F. Benson was promoted to chief engineer.

"E" Award to Caterpillar Co.

Caterpillar Tractor Co., Peoria, Ill., has been awarded the Army-Navy "E" symbol for outstanding achievement in the production of war material. Presentation of the "E" flag was made at appropriate ceremonies within the plant Friday, March 12.

Brigadier General D. McCoach, Jr., Assistant Chief of Engineers and Captain E. A. Lofquist, Chief of Staff, Ninth Naval District, made the award.

Studying Problems of Scale and Corrosion

New developments covering problems relating to the control of corrosion and the prevention of scale, particularly in cooling systems, hot water systems, boilers, and circulating water systems, are all discussed in a new free booklet issued by the D. W. Haering and Co., Inc., 205 W. Wacker Drive, Chicago, entitled "Water Studies."

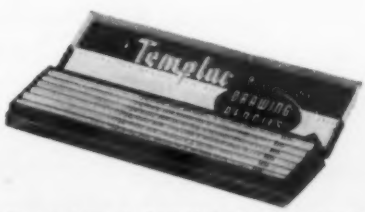
Profusely illustrated, the booklet provides important information on this subject and includes tables, charts, and graphs to help solve these water problems. This company utilizes various types of glucosates designed to meet the requirements of particular water problems in order to render the water non-corrosive and to prevent the formation of scale.

Improved Drawing Pencils Help War Production

A better quality drawing pencil is proving an aid to war production and will prove to be a further aid to engineers in post-war design and construction, according to Leslie D. Reid, Vice-President, Reliance Pencil Corp., Mount Vernon, N. Y.

The modern drawing pencil, such as Reliance's Templar 778, states Mr. Reid, makes it possible for the engineer or the draftsman to work much faster and still turn out clear tracings that result in top-grade blueprints. The wide range of grades varying from 6B, the softest and blackest, to 9H, the hardest, makes them available for every type of drawing, tracing, or rough sketch.

Broken leads, scratchy and uneven leads, splitting and fraying of the wood, and other frequent causes of irritation are almost unknown in Templar 778, he states. Instead there is a smoothness, uniformity, and durability which makes drawing a pleasure and enhances the quality of the work.



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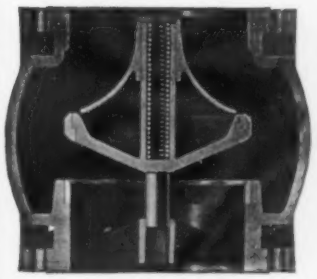

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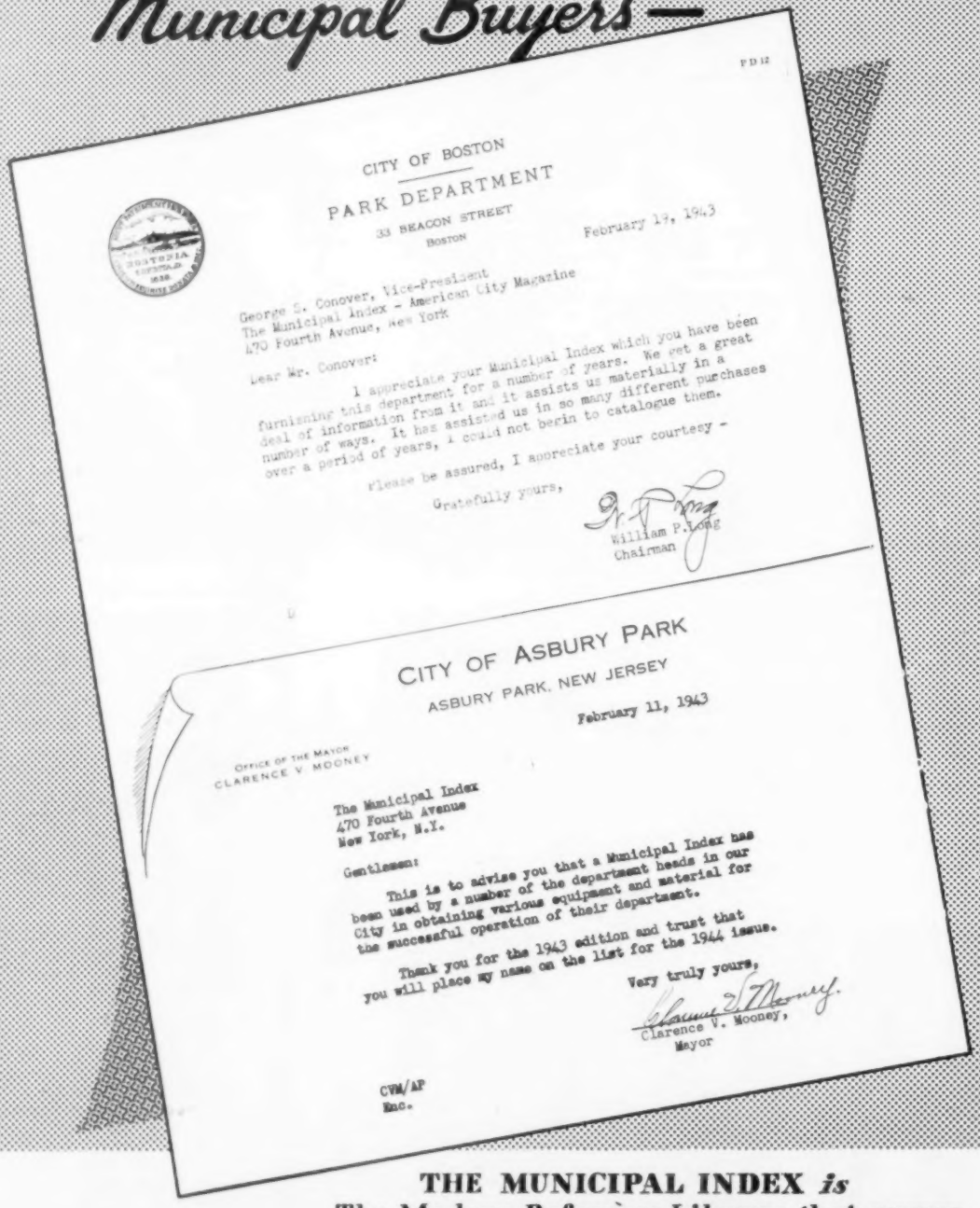

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February 13, 1943

George S. Conover, Vice-President
The Municipal Index - American City Magazine
470 Fourth Avenue, New York

Dear Mr. Conover:

I appreciate your Municipal Index which you have been furnishing this department for a number of years. We get a great deal of information from it and it assists us materially in a number of ways. It has assisted us in so many different purchases over a period of years, I could not begin to catalogue them.

Please be assured, I appreciate your courtesy -

Gratefully yours,

William P. Long
Chairman

CITY OF ASBURY PARK

ASBURY PARK, NEW JERSEY

February 11, 1943

OFFICE OF THE MAYOR
CLARENCE V. MOONEY

The Municipal Index
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New York, N.Y.

Gentlemen:

This is to advise you that a Municipal Index has been used by a number of the department heads in our City in obtaining various equipment and material for the successful operation of their department.

Thank you for the 1943 edition and trust that you will place my name on the list for the 1944 issue.

Very truly yours,

Clarence V. Mooney,
Mayor

CVM/AP
Enc.

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Steel Fabricators Awarded Army-Navy "E"

The Pacific Coast yard of the Chicago Bridge and Iron Co., at Eureka, Cal., has recently been awarded the Army-Navy Production Award for outstanding performance in wartime construction. Presentation ceremonies were held at the yard on February 27.

Commander Harry A. Shawk, Commandant of the Eureka Section Base, represented the Navy and made formal presentation of the award. Lt. Col. Donn Austin represented the Army and presented token pins to employee representatives. Charles S. Pillsbury, Vice-President, accepted the award on behalf of the company.

The award also included the local employees of the Mercer Fraser Co., subcontractors on facilities of the yard.

C. G. Richardson Notes 40 Years' Service

Forty years ago, on February 16, 1903 to be exact, Charles G. Richardson began his outstanding career with the Builders Iron Foundry in Providence, R. I. Then, as now, Zechariah Chafee was president. Clemens Herschel and Frederick N. Connet, two renowned engineers served respectively as consulting engineer and chief engineer. Both men were making water and sewage works history by the various models of venturi tube meters that they had invented.

C. G. Richardson

Young Charlie Richardson was soon engaged as Mr. Connet's assistant, and later acquired assistants of his own. His work during this period was marked by his sound contributions to the development of the venturi meter. Under his guidance extensive meter and control systems were designed and installed on such notable plants of the pre-war era as the 100 million gallon softening and filtration plant of the Metropolitan Water District of Southern California; Baltimore's Back River activated sludge plant; Fall Creek treatment plant of the Indianapolis Water Co.; Chicago's southwest sewage treatment works (largest in the world); and the treatment plant of the Minneapolis-St. Paul, Sanitary District, to mention a few.

An important addition to Builder's line of water works equipment, a development in which Mr. Richardson assisted, is the new Chronoflo Supervisory Control for well fields. Applicable to almost any hydraulic, electrical or mechanical operation such as stopping and starting pumps, opening and closing valves, etc., this remote control system is co-ordinated with flow meters, indicating lamps, and telephones, to perform all necessary functions from a central station.

Since the beginning of World War II, Mr. Richardson and his staff have devoted almost their entire service to the requirements of the Government. The effectiveness of these and other activities can be seen by the award of the Army-Navy "E" on August 12, 1942.

Mr. Richardson has been active not only in the municipal field, but in professional fields as well. He has taken an important part in the work of the American Society of Civil Engineers, American Water Works Association, and the Federation of Sewage Works Associations.

V. E. Arnold Dies, President Phoenix Meter

V. E. Arnold, president of Phoenix Meter Corp., Prince Bay, Staten Island, N. Y., died at his home on March 18.

Mr. Arnold had been president and owner of this company since 1930. Under his leadership it expanded rapidly, increasing the scope of its activities to a nation-wide basis. Previous to his purchasing the Phoenix Meter Corporation, he was District Manager of the New York office of the Pittsburgh Equitable Meter Co., and prior to that, was with the Scranton Gas and Water Co.

He was prominent in the Water and Sewerage Works Manufacturers Assn.

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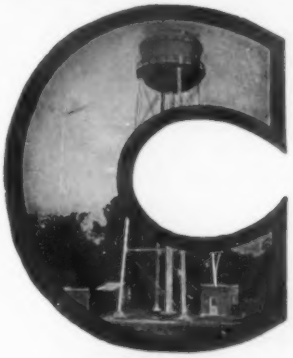

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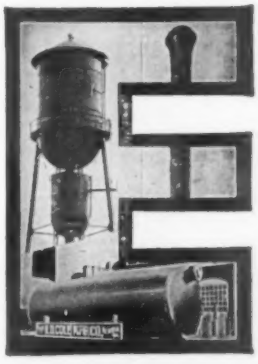

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The American City

THE VITAL ROLE OF THE CITIES

Throughout history the ability of cities to withstand siege has determined the outcome of many a war. In the present conflict this negative role has evolved, as never before, into positive action by the cities not merely for defense but for victory.

When England stood alone, against the fury of what appeared to be an invincible enemy, her municipal services and their dusty, stubborn repair crews played a vital and heroic role in the epic Battle of Britain. Water supply, sanitation, transportation, police and fire protection — all were maintained at a remarkable level of efficiency. Had there been a collapse of these services, so essential both to war workers and fighters, the England we know might have disintegrated and Hitler, rather than the Allied Powers, would be demanding unconditional surrender. At Leningrad, Moscow, and Stalingrad, the civilians fought shoulder to shoulder with the soldiers in defense of their cities. Even at tragic Warsaw, the mayor remained at his post giving what aid and courage he could to his people long after the defending Polish armies had surrendered.

American cities, fortunately, have had to play no such tragically spectacular role, but they have an equally important obligation. They must maintain vital municipal services essential to the maximum output of war industries and to the health, safety, and welfare of the entire community. Whether continental United States is ever invaded or not, there must be strong and self-reliant American cities if our army, navy, and air forces are to be victorious.

The cities accept the challenge!